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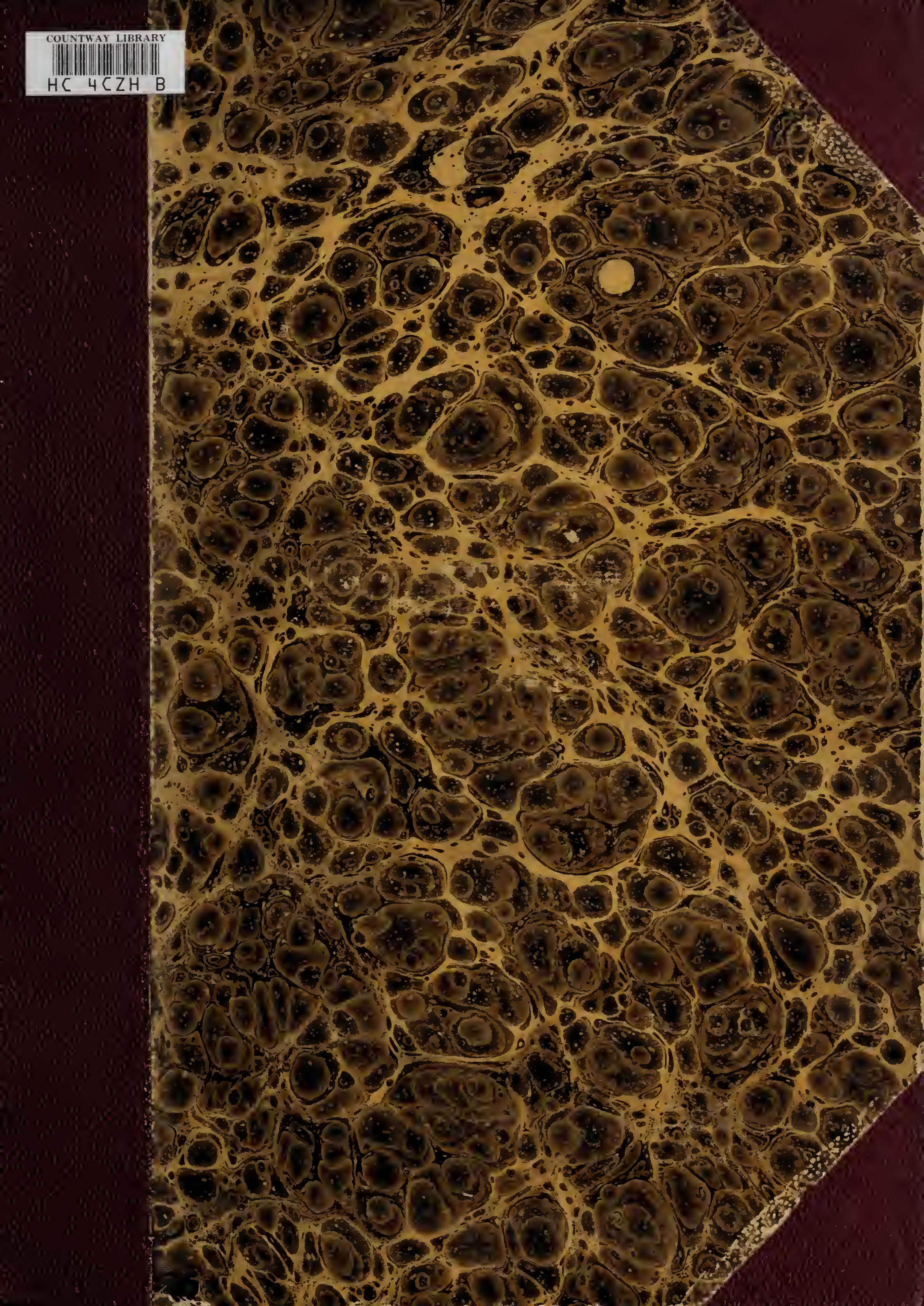

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ORIGINAL ARTICLES.

THE RELATION OF THE STATE TO THE EPILEPTIC.*

By W. A. Hunt, M. D.

Northfield, Minn.

During the past few years a class of defectives has forced itself, by reason of numbers, dependency and causal relation to the other defective classes, upon the attention of society, and, as a protection to itself as well as a duty it owes to this class of unfortunates and their afflicted families, the state has come to the point of adopting the epileptic as a public charge, extending to him a parental guardianship, with every facility for a return towards the normal condition, and providing a kind ministry to the wants of the hopeless epileptic wreck. This charitable and at the same time protective measure is now well inaugurated. Ohio was the first state to equip a hospital home exclusively for epileptics under state control. This hospital was opened in 1893. New York followed in 1895, with the Craig Colony for epileptics, on a tract of 1,800 acres. Massachusetts and New Jersey have since, by legislative act, authorized the establishment and maintenance of similar institutions. Minnesota, with California, Illinois, Indiana, Michigan, Maryland and Pennsylvania, has, for several years, recognized the duty and necessity of providing for this class, by placing them (as far as possible by themselves) in institutions for the feeble minded or insane. The adoption of such steps by these eight or ten states during the past few years indicates a necessity for such action, and has undoubtedly been brought about in large part by the wonderful advance made in recent years in the study of social problems and the facts gathered, authoritatively, by state boards of charities and correction, regarding all classes of defectives, delinquents and dependents.

To fully appreciate the position which the epileptic class holds to society at large, a brief review of special but generally accepted features of this disease will be helpful, although no attempt will be made at definition, description or treatment, except so far as may pertain to the epileptic as a class, and, as such, his relation to the public.

The usual estimate of the proportion of epileptics to the general population is placed conservatively at two per thousand; this would mean about 140,000 in the United States and a little over 3,000 for Minnesota. An estimate (2,700) made from applications for admission to the state school for feeble minded and epileptics at Faribault nearly reaches this number.

The causes of epilepsy are numerous and varied. The epileptic diathesis or condition is produced by agencies which may be referable first, to hereditary influences, second, to personal condition or acquirement, each of these divisions being composed of causes varying from the most clear and traceable to the obscure and unascertainable. The most frequent factor in the production of epilepsy is heredity, in the form of a distinct neurotic family taint. Under this head would be included nearly all the idiopathic or developmental cases occurring under twenty years of age, and a large percentage of those due to degenerative changes of later adult life. Gowers found in 1,218 cases that 35 per cent. were clearly traceable to a neurotic inheritance. Of 4,300 cases collected by Hare 26 per cent. presented this family taint, and of 980 cases studied by Allen McLane Hamilton over 40 per cent. In the second group of causes, often termed the accidental, are included all peripheral irritations, acting upon a previously weakened or exhausted vitality, such as emotion, fright, results of primary diseases, traumatic and toxic influences, cranial and cerebral defects, etc. Head injuries, recent or remote, according to Dixon, furnish a larger percentage of epileptics than is usually accredited to this cause, the attacks often not following the injuries for from one to ten or even twenty years. These accidental or removable causes tend, if unchecked, to develop into a permanent epileptic habit, which remains an established disease after the original cause has disappeared.

The exact pathology of epilepsy is still unknown or at best uncertain, no theory yet advanced being accepted as entirely satisfactory. F. W. Langdon, of Ohio, in a paper before the American Neurological Association last June, states what is probably today the latest and most generally accepted theory regarding epilepsy and chorea, when he says that "they are the dynamical expressions of an inhibitory insufficiency and not indications of over-production of nerve energy," and his summary as to treatment is "to lessen the incoming sensory excitation by diet, occupation and medicines, and thereby lessen the intensity of motor responses which are not provided with suitable overflow and inhibitory mechanisms."

A common division of the disease into grand mal and petit mal, a distinction principally of degree, is to be borne in mind, mainly because the latter, petit mal, represents the more unchecked and destructive career and consequent permanent disability, rendering its victim more surely a complete wreck, eventually requiring constant oversight and guardianship; while the former, grand mal, is more susceptible to treatment, with resulting improvement and occasional cure.

The earlier in life the epileptic condition becomes *fully established* the more baneful are its effects, and the less amenable is it to treatment. Rarely, if ever, do epileptic children develop normal intellects; while, occurring later in life, the usual tendency is towards progressive deterioration of all the faculties, mental, moral and physical. So wide, however, is the range between the confirmed epileptic far advanced in the pernicious effects of the disease and the victim of occasional attacks, and so varying are the results upon different individuals and the personal resistance to its ill effects, that not all cases end in marked mental decay. Many continue to perform the ordinary tasks of life satisfactorily, while even a few may become Cæsars or Napoleons, in spite of the recurring attack and its attendant ill-effects, and retain an unbroken constitution able to compete mentally with the brightest minds. Such noted exceptions to the rule were Cæsar, Peter the Great, Petrarch, Mohammed, Händel, Moliere, Rousseau and Napoleon. However, the intellectual future of the epileptic is usually one of gradual loss of mental powers. Esquirol's apt distinction between idiocy and dementia is applicable in the comparison of the natural imbecile and the epileptic of feeble mind. The former "has always been in a state of want and misery," while the epileptic of feeble mind "is a rich man slowly becoming poor."

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* Read before the Minnesota Academy of Medicine, December 2, 1896.

This gradual decay and destruction of faculties places epilepsy as a prominent causal factor in all classes of defectives and delinquents. The epileptic insane form a section in every hospital for insane, not a large class, but one due to this definite cause. In July of this year there were 44 epileptics in the State Hospital for Insane at St. Peter, 41 at Fergus Falls, and 40 at Rochester. The percentage of insane patients of epileptic form or complication is given by Peterson as probably under ten per cent. As a cause of idiocy and feeblemindedness it ranks high. Dr. Osborne, Superintendent of the California School for Feeble Minded, states that epilepsy is a predisposing or complicating cause in over 60 per cent. of all cases of feeble-minded. A Maryland report puts it at 50 per cent. These percentages, however, may not apply to the feeble-minded at large, as only the more advanced cases seek institutional care. In this connection it is interesting to notice the correlation of these classes of diseases, and how interchangeable or mutually exchangeable they are. Sufferers from such mental disorders and impairment as insanity, imbecility, chorea and the like, transmit epilepsy in large degree. Epilepsy, in turn, furnishes the large proportion of the feeble-minded and a noticeable porcentage of the insane, choreic and other mental and moral defectives. Society is fast learning that there is this solidarity of the defective classes: that the insane, the feeble-minded, the criminal, the pauper and even the innocent epileptic, are all inter-related. This relation between the epileptic and the insane and feeble-minded is particularly noticeable and demonstrable, and furnishes one of the strongest arguments in favor of state control.

As to the cure of epilepsy, not 5 per cent. of all cases can reach such a fortunate termination, and then only after years of waiting and anticipation of return of the dread attack. Scarcely any other disease is so little amenable to therapeutic agencies alone. Petit mal, especially, is discouraging in management, almost to hopelessness, while but few cases of grand mal can be cured permanently. During the past two or three years hope was aroused that by operative interference in selected cases the percentage of cures could be raised. Cases of recent trauma and of local epilepsy furnished the class of surgical treatment, but the results reached by such surgeons as Horsely, Keen, Nancrede, Starr, Sachs, Gerster and others show no such increased percentage of cures or even permanent improvement. Such is the present status of epilepsy as a curable disease. On the other hand, with *every* judicious method employed, few chronic diseases are more generally capable of improvement. "Most cases of epilepsy (grand mal)," says Landon Carter Gray, "can be improved." While its "insidious inception, hereditary nature, unknown pathology, practical incurability and demoralizing effects combine to make it one of the most dreaded of diseases," still by diet, excellent hygienic surroundings, regular hours of labor, study and pleasure, best medical treatment and close attention to personal needs of each case, improvement can be effected in the very worst cases. Individual care, with employment of every helpful agency, will bring some benefit. Only a limited few, however, are so situated as to be able to receive such attention, unless it be provided by state or private charity.

The relation of the epileptic to others in the family, in business, in public life, is one of the saddest to contemplate, and appeals strongly to the sympathy of any who, in the least, stops to consider his infirmity. "The very nature of his affliction debars him from enjoying equal privileges and advantages with his more fortunate fellow beings. Avenues of employment open to others are often closed to him. Deprived of many social advantages, of opportunities for acquiring an education or trade," and often of securing employment, he is thrown back upon himself to still further accelerate the downward career of his malady by brooding over his thwarted and hopeless condition. Excluded from the full enjoyment of ordinary duties and privileges and unfit for competitive labor, is it to be wondered at that, fighting against such odds, discouraged, neglected by friends and shunned by society, he becomes at last a mental and actual pauper, a worthy and proper claimant for charitable state care? "The rich man slowly becoming poor!" realizing it, striving against it, but buffeted and beaten down at untimely moments by his dire and relentless enemy, is it a cause of surprise that, as a class, they have been compelled to gravitate to the poorhouse and to public protection, until their very numbers challenge the attention of society where heretofore their afflictions have failed to meet with due recognition? Who can fathom the mental anguish of the unfortunate caught in the rapids of such a hopeless malady to be hurried along to a fate worse than death: an inevitable mental wreck? If any stay can be interposed, if relief however temporary can be afforded, if sympathy and comfort and care can lighten the burden, who will hesitate to freely provide it? If the most that can be expected is to maintain a fair bodily health, and partially to hold in check the attacks, with their attendant mental deterioration, this alone will repay all effort.

Another very important consideration touching upon the relation of the epileptic to society at large is his unfitness to assume the marriage relation. The care of large groups of epileptics is of so recent date that statistical data have not as yet been sufficiently collected to establish any comparative ratio as to the transmission of imbecility, epilepsy, insanity, etc., by epileptic parents, and, when the question is still further narrowed down to the ratio of epileptic children to epileptic parents, there are as yet no adequate statistical data to establish the extent of such a causal relation. Institutional data have to do with only a small percentage of the total number of epileptics, but may be taken as an illustration. Statistics from Ohio covering only three years show that, of 403 epileptics, 48 or nearly 12 per cent. come from epileptic parentage, and 17, or 4 per cent. from insane parentage. It is, however, known conclusively, from general experience, that a large percentage of the progeny of such parentage will suffer from this or some other grave nervous disorder. In other words, while epilepsy, as a direct inheritance, is not a necessary or unusually frequent sequence, it has been demonstrated beyond question to be a very common cause of insanity, feeble-mindedness, chorea and other mental and nervous disorders, including epilepsy. On this ground the question of the marriage of an epileptic is worthy of full discussion. At the 1895 National Conference of Charities and Correction at New Haven, Dr. Geo. H. Knight, one of the best authorities on the care of the feeble-minded and epileptic, presented a paper in which he called attention to a paramount "duty which, as citizens, taxpayers and lawmakers, we had neglected, and that is, our failure to secure, by suitable legislation, such a series of laws as would prevent the tremendous increase in our imbecile population," and mentioned the marriage of epileptics as "that most prolific cause of imbecility." He doubted, however, the possibility of ever securing adequate legislation which would prevent the marriage of epileptics, because of the injustice done to "the thousands who are only its occasional victims, and are not prevented from filling positions of importance, often for a life time, and who would rise like a mighty army to protest against any legislation which would aim at bettering the race at their expense." When it is considered, however, that the epileptic imbecile is the only phase discussed by Dr. Knight, and that other fruits of such a marriage are seen in a less degree, perhaps, in the epileptic insane, the epileptic criminal and other classes of the dependent epileptic, and remembering that, at any given time, the marriageable number of epileptics is small compared to the total number, the injustice done the few in protecting society at large becomes a minor argument. In fact, in his own state (Connecticut) since the paper mentioned was read a stringent law has been passed which ought to be upon the statute books of every state. It provides that "no man or woman, either of whom is epileptic, imbecile or feeble-minded, shall intermarry or live together as husband and wife when the woman is under forty-five years of age."

Another section provides imprisonment for not less than three years for "every man carnally knowing any female under forty-five who is epileptic, imbecile, feeble-minded or a pauper, and for every man who, himself an epileptic, shall carnally know any female under forty-five, and for every female under forty-five who shall consent to be carnally known by any man who is an epileptic, imbecile or feeble-minded." This is simply applying the laws of heredity which govern both the human and brute races. Low grades of stock in both cases are not only perpetuated but accentuated by inbreeding. The wisdom of enacting such a law as that of Connecticut, while at first seeming premature and unjustifiable, is fully vindicated by the facts, and is preventive in the widest and most effective sense, being practically the only rational solution of a perplexing problem. This view will, I believe, eventually come to be the accepted basis for legislation, and in the near future, as it is being rapidly taught by those who have made the subject a study and are in a position to know the facts.

The pertinency of presenting this subject for the consideration of the Academy, instead of one of a more technical or professional character, lies in the fact that the public is as yet largely uninformed and unable to think or act intelligently on this important question, which presses for an adequate solution. State care of the epileptic is still in its infancy, and, like every other reform or advance, depends upon the rapidity and intelligence with which public opinion is formed and the imperative form in which an appeal comes to it. The medical profession is properly looked to as the guide and conservator of the public health. It should be expected and ought of right to assume the initiative, and point out the best methods of protection and prevention against any threatening agency, as well as to be foremost in directing philanthropic and charitable movements, especially relating to such classes as would naturally come under medical supervision. But "physicians are not as keenly alive in this way," says T. Mitchell Prudden, "as they should be to their responsibilities as citizens, and laymen in public office cannot be regarded alone as at fault if they be not wisely directed. Physicians know what ought to be done in the larger public way to render the necessary knowledge in control of disease available, and yet do not, as individuals or as a guild, bring their expert knowledge strongly to bear as the intelligent citizen always can if he be right and enough in earnest." Information coming from such a source is accepted as authoritative, and becomes a basis for action. Such an indorsement by the medical profession, I believe, should be given to the state control and state guardianship of the epileptic. The public knows little of the nature of the disease, the low percentage of cures, the possible control afforded by proper care, the natural destructive tendency when neglected, the terrible entailment suffered by the victim and his offspring, the causal relation to insanity, imbecility and dependency, and the already large number of epileptics now dependent upon local public and charitable aid. When enlightened, society will be better able to appreciate the economical as well as the humanitarian idea of providing care for this unfortunate class at public cost. I believe it to be a duty of the profession not only to enter a plea for the better care of the epileptic but to influence public opinion to the point of intelligent action to secure such care.

The history of the care of the epileptics by state or philanthropic organizations is a meagre one, dating from about 1848, in an effort by pasteur John Bost, of La Force, France, to alleviate the sufferings of all classes of unfortunates, from incurable diseases, feeble-mindedness, epilepsy, blindness, etc. This effort eventually proved so satisfactory and such a needed relief that twenty years later, what has now become a most successful and model institution, was started at Bielefeld, Westphalia, on a plan which has been copied and adopted more or less by nearly all subsequent homes for epileptics. This colony has developed into a large and prosperous community providing for over 1,200 epileptics and utilizing over 1,300 acres of land. It provides a church, schools and hospitals, and the inmates are engaged in the raising of all kinds of stock, the cultivation of all kinds of crops from the farms, gardens and orchards, and a large range of other useful occupations is offered, connected with and adjunct to the main branches of labor. Such an industrial and educational system, with scientific medical care and attendance, is considered to be the ideal environment for epileptics. Instead of one or more large and expensive buildings to accommodate a large number, smaller cottages, accommodating from forty to sixty inmates, are preferred as best adapted to classification of inmates as well as to secure more natural and homelike surroundings. As the demand increases for larger accommodations it can be met by erecting similar cottages. This separation of different classes of the afflicted into groups also allows of more systematic study and treatment of the various phases of the disease.* Wherever such provision as above has been made for the epileptic the results have been most satisfactory, and the colony plan is the one now generally adopted. In our own country, of the states named in the former part of this paper as providing any care whatever for the epileptic, New York, in its Craig Colony, has inaugurated the most extensive system, based on the Bielefeld Colony plan. California has recently bought a large tract of land with the same end in view for both the feeble-minded and epileptic. Minnesota has just added a four-hundred acre farm to the ground used by the school for feeble-minded and epileptics, and this would offer a suitable means for the adoption by our own state of a similar plan. At present, of about 2,500 feeble-minded in the state, 355 are occupants of the State School at Faribault, and of about 3,000 epileptics 117 are cared for, with applicants for admission from both classes in excess of capacity. The epileptics are housed with the feeble-minded to the overcrowding of the latter and the detriment of both, as the association

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* Since this paper was prepared the report of the Craig Colony in New York for its first eight months' existence has been given out, and shows remarkably successful results in all lines.

The following summary of these reports (partly verbatim) is here given to prove the advantages of this system:

February 1, of this year, the colony was opened to patients and about one hundred and fifty were at once accommodated. At the end of eight months two very important facts have become evident: First, that remarkable improvement has taken place in the condition of the patients, and, secondly, that the economic success of the scheme is assured. Nearly every subject has gained in weight and in general health. In all cases the epileptic seizures have diminished in frequency to a marked degree, and in some instances this has been even extraordinary. The expression of the inmates has altered, so that, instead of the dull, hopeless look of the almshouse epileptic one sees on all sides happy faces, in which intelligence and hope are being reawakened. The school has also been successfully started. Carpentry, sewing, painting, etc., are being carried on by the patients, but, naturally, the great work of the inmates is in the field and garden. Eighty-three per cent. of the males and seventy-six per cent. of the females have given eight hours daily work. This labor has had a great effect upon the income of the colony, demonstrating the economic value of the scheme. The cost of maintenance of patients from date of opening, February 1, 1896, to October 1, a period of eight months, was $28,258, while the products of the farm and garden amounted to $14,230. The colony has, therefore, actually produced already one-half of the cost of maintenance, and this during the first year of unusual expense. Accommodation for three hundred more patients will at once be provided, and eventually the twelve hundred epileptics that are now public charges in the New York almshouses and various charitable institutions will be cared for, of epileptics with the feeble-minded and insane is mutually injurious. The State should furnish, as soon as practicable, a separate colony home for the epileptic class. The care of the epileptic in Minnesota has gone beyond the experimental stage, and the need of the adoption of the more advanced methods of the colony plan is not only apparent but imperative to secure the desired end. With the recently increased acreage of the institution farm the only necessary outlay would be for buildings, and these, if built on the cottage plan, would be comparatively inexpensive. The epileptics are with us in sufficiently large numbers, with a much smaller number being accommodated than are seeking admission. They are now placed in an overcrowded school for the feeble-minded. The state is already committed to their care, and there is ample room to at least *begin* the carrying out of the colony plan on the present tract at Faribault. The close relation of the epileptic and the feeble-minded would naturally place them under the same superintendency, thus economizing in expense. As to the duty of the state, and the advisability of the pursuance of such a course, there ought to be but one opinion on the part of the medical profession. Such institutions are laboratories for the study of *large groups* of cases as well as *single* cases, and valuable information is often obtained from such a broader view of a disease than by considering singly an individual case. Carefully kept records, with deduced statistical data from institutions caring for large numbers, will often bring to light valuable facts. The gathering of such statistics and facts may be of great value in increasing preventive measures and lessening the number afflicted, and when added to this are the more systematic and enlarged opportunities for scientific investigation and study, there is possibility of much good accruing both to the state and to this class of unfortunates. The grouping of large numbers, the separation into classes of similars, and the fullest research into the pathological conditions may yet add greatly to our knowledge of this particular disease. The very fact of the inadequacy of our knowledge of the pathology and treatment of epilepsy is a strong argument in favor of "turning upon the subject the concentrated light of scientific investigation and study." The state should not only allow the fullest pathological research in all its hospital homes, but should *require* it as a possible source of future return for the public outlay, and should equip each institution with capable pathologists and every facility for study into the causation and treatment of all such maladies.

A consideration of the public good does not wholly or largely mean the financial phase, nor one only of philanthropy to the aided, but looks to the removal of agencies destructive to the health, lives, property and morals of society, and, in this broader view, it may be said of the epileptic as has been said of the feeble-minded, that "however much it may cost to take care of these unfortunate people it is going to cost in the end far more to neglect them." Such a removal and segregation of the epileptic class into separate hospital homes can only be a beneficial protective measure in every way. They are eliminated as a degrading and demoralizing element of society, while being improved somewhat themselves mentally, morally and physically. Society is purified by the removal of such an element, and the expense can be lessened to some good degree by their profitable employment. They are also prevented from propagating an inferior progeny. From what has preceded I conclude that the state would be justified in assuming control of the epileptic with full guardianship of the dependent epileptic.

I can best close with the fitting words of Supt. Rogers, in a paper on "The Future of the Feeble-Minded," read at the third Minnesota State Conference of Charities and Correction, and which will apply with equal force to the dependent epileptic: "Let the state, then, gather under her protecting wings any and all whose mental heritage leaves them helpless, hopeless or stamped with decided inferiority. Kindly minister to their wants, lend gentle comfort to their misfortune, generously fill their lives with plenty and their hearts with joy, but firmly deny the right to increase their kind by a practical 'Thus far shalt thou go, but no farther.'"

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It is claimed that the application of collodion is the best treaiment for external hemorrhoids. The hardening film supports the pile on the same principle that the elastic stocking supports varicose veins.

THE X-RAYS.*

By Arthur Ayer Law, M. D.

Minneapolis.

When on the eighth of November, 1895, in the little town of Würzburg, Bavaria, Dr. William Konrad Roentgen made the discovery that has since aroused the enthusiasm of the scientific world, he conferred as great a blessing upon humanity as did Sir Joseph Lister, Sir James Simpson or Dr. Morton.

It had been known for many years that the discharge of a high tension electrical current through a vacuum was productive of most brilliant and beautiful results. Prof. Crookes was the first to demonstrate this phenomenon and to devise tubes which are now known by his name. The Crookes' and Geissler's tubes are nothing more than glass tubes into which have been inserted two electrodes, either of platinum or aluminum, and exhausted of their air until a perfect or nearly perfect vacuum results, one millionth of an atmosphere remaining.

Until 1894, when Prof. Hertz studied the subject, the illumination of vacuum tubes was of no practical utility aside from the novelty and beauty of the experiment. Prof. Hertz, after an exhaustive study, found that upon the electrical excitation of a Crook's tube some kind of energy, which he called the "Cathode Rays," resulted and had the power of penetrating certain opaque substances, as instanced by an aluminum plate, if this plate was within the vacuum tube.

His assistant, Dr. Leonard, pursued his investigations still further and found what Hertz failed to find, viz: that certain invisible rays outside the tube, but emanating from it, had the wonderful power of penetrating substances opaque to the ordinary rays of light, as wood, some of the metals, paper, etc.; also that they acted upon a sensitized plate as did ordinary light.

Dr. Leonard failed to appreciate the full import of his discovery or to follow it up. It fell to the lot of Prof. William Konrad Roentgen to develop this discovery. Like most of the great discoveries which have startled the world, his was purely the result of an accident—an accident that gave him the hint which resulted in the report he gave to the world at the December meeting of the Würzburg Physico-Medical Society.

Prof. Roentgen claimed that he had discovered a new kind of rays, which he very aptly named the "X-rays," using the algebraic symbol for the unknown quantity as being expressive of what was really known of the physical properties of the rays.

His rays differed from the so called "Cathode Rays" of Hertz and Leonard in that they could not be deflected by a magnet; neither could they be reflected nor refracted; again, they were immeasurably stronger in their ability to penetrate opaque substances and influence a sensitized plate.

In the modest report of his discovery Prof. Roentgen did not attempt to explain what the rays were; simply told how he had procured them from a Crook's tube excited by the disruptive discharges from a large Rhumkorff coil; showed photographs taken through the flesh and showing the bones of the hand, of various metals and woods penetrated by the rays.

His report of this discovery was received with the incredulity that is the heritage of every new and wonderful invention or discovery. Ere long, however, from the scientific centres of Europe came corroborative testimony substantiating in the fullest measure what Prof. Roentgen so modestly claimed.

Never in recent years have the scientific and medical worlds been so thoroughly aroused as by this discovery. It naturally appealed most to physicians, who saw in it a means of diagnosis that bid fair to put into retirement many of the objective and subjective methods of physical diagnosis now in use.

Following close upon the footsteps of the continental scientists, our own countrymen began to report their investigations. Prof. Arthur Wright, of Yale University, was one of the first gentlemen in this country to get results. Prof. Goodspeed and Dr. Cantrell, of the University of Pennsylvania, were pioneers in the work.

All the work so far in Europe and America had been done by means of the vacuum tube, excited by an induction coil. It fell to the honor of Dr. Wm. J. Morton, of New York, to take the first photograph by means of a tube excited by a Holtz machine.

Owing to the fact that the so-called static induced current discovered by Dr. Morton in 1881 and reported by him is practically identical with the induced current from a Rhumkorff coil, Dr. Morton conceived the idea of using this current from his large static machine. He coupled up his tube to the outer coatings of his smallest Leyden jars and regulated the interruptions by separating the rods. The doctor got better results with this method than by means of the induction coil and put the method within the reach of every physician who can command a Holtz machine and vacuum tube.

What work I have done with the X-rays has been done entirely as he taught me, by means of the static induced current.

What the rays are is a question that is agitating the experimenters, and a question as yet unanswered. Prof. Roentgen himself suggests that the rays are due to longitudinal vibrations in ether, in contradistinction to ordinary rays of light which are horizontal.

Nicholas Tesla holds that the rays are material particles derived from the metallic electrodes within the tubes and being thrown off penetrate the glass, whatever substance is interposed between them and the sensitized plate upon which they finally impinge and influence as do rays of light.

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* Read before the Section of Surgery of the Minnesota State Medical Society, June 18, 1896.

Some French observers believe the rays to be of the nature of light, that is, invisible or black light. Aside from the ordinary photographic application of the rays in taking the skiagraph, an instrument called the skiascope or cryptoscope was devised, at about the same time, by Prof. Magie, of Princeton, and Salvioni, of Italy. This consists of a tube darkened on the inside, into one end of which is inserted a sheet of sensitized or fluorescent paper—preferably barium platino-cyanide paper. With this instrument and an excited tube we are enabled to see what before could only be photographed; the rays penetrating the limb or subject interposed between the tube and the skiascope, and the shadow being thrown upon the sensitized paper renders it fluorescent in different degrees according to the density of the subjects used.

Of infinitely greater utility than the skiascope is a later instrument suggested by Mr. Edison. This is the so-called "fluorescope," differing from the "skiascope" in that it is much larger, has a mask fitting snugly to the face, and, instead of a tube, has for its body a hopper-shaped box into the large end of which is inserted a screen coated with calcium tungstate, which is much more sensitive to the X-rays than barium platino-cyanide, and is the substance chosen by Mr. Edison, after experimenting with 1,800 different ones, as being the best for the purpose. With this instrument it is a simple matter to see the bones of the face and the extremities, hands and feet, the ribs, the vertebral columns, and even the heart beating casts a dark shadow that can be seen distinctly.

In their application to medicine and surgery, as a means of diagnosis, the rays are of more immediate interest to us. We can readily determine the presence of many of the foreign bodies, whether imbedded in the flesh or bones, as instanced by bullets, needles, glass, pieces of metal and some of the calcareous deposits; the rays penetrating the flesh and, to a lesser extent, the bone; but being unable to penetrate the foreign body, the shadow of which is thrown upon a fluorescent screen or sensitized plate.

I have seen with the fluorescope and have taken photographs of needles, bullets, pieces of glass and metal underneath the bones, and in the tissues and joints of the hands, feet, arms and legs, the rays being thrown through the flesh and bones and showing perfectly the foreign bodies imbedded; indeed, in one case the eye of the needle is apparent after being photographed beneath the bones of the hand.

By means of the fluorescope I have been enabled to locate bullets imbedded in different localities in the body, from the toes to the abdomen, from the tips of the fingers to the shoulder, and even through the base of the neck. Indeed, I have seen a bullet through the thorax.

The callous resulting from a fracture, or indeed the fracture itself, is readily seen. I have taken photographs of both. The rays are particularly useful in diagnosing cases of obscure fracture, especially those where a joint is involved or where the swelling is so great as to preclude the possibility of a diagnosis by other means.

Some of the diseases of the bones are readily pictured, notably the rarified areas incidental to tubercular disease; exostoses and bony tumors are shown readily, while in cases of ankylosed joints the bony adhesions can be seen, also uric acid deposits.

So many cases have been operated upon following a diagnosis made with the X rays that it is almost superfluous to mention them, but the case of Dr. Wm. J. Morton, of New York, is unique in being the first in America to be operated upon; a needle was located in a woman's foot after having been imbedded for nine years.

Dr. T. S. K. Morton, of Philadelphia, operated upon a patient who had been shot in the forearm a month before; the bullet was never located although a discharging sinus persisted. Dr. Morton had a skiagraph taken of the arm and located the bullet imbedded in the ulna beneath a splinter of bone which had prevented its being detected with a probe. Its removal was easily accomplished.

I have had cases referred to me for the location of bullets. Photographs were taken, the patients sent home to their surgeons along with the photographs, and the bullets removed.

If the wonderful things that have already been accomplished by means of these mysterious rays are any criterion, we may with a considerable degree of certainty look for still more wonderful things in the future. It has been claimed by some observers that the rays have the power to kill bacteria. With this claim in mind, I was enabled to obtain duplicate sets of test tubes containing, as media, potato, agar and glycerine agar. These media were freshly inoculated from cultures of bacillus violaceous, bacillus of anthrax, staphylococcus pyogenes aureus and bacillus coli commune. Immediately after the inoculation one set of tubes was placed in such a position that the rays could pass through their cotton plugs and fall upon the bacteria. They were exposed to the action of the rays for thirty-five minutes, then put away for four days. At the end of this time they were compared with the set of tubes not exposed to the rays. Both sets were found to contain cultures in the most flourishing condition, all of them growing. While this primitive experiment does not prove conclusively that the rays cannot kill all bacteria, it does prove to my satisfaction, at least, that so far as these bacteria are concerned the rays are practically inert.

These observations are in accordance with the findings of Delephine and Park, who agree that bacteria are not affected by the rays.

The rays have been projected upon certain types of skin diseases due to bacteria, as instanced by eczema and lupus, and upon trachoma; but with negative results in all cases.

I have taken pictures with the rays of gall stones, kidney and bladder stones, and have found that gall stones offer but little resistance, thus precluding the liability of their being diagnosed by this means. The phosphatic stones offered more and the uric acid the most resistance. This was prettily shown by a photograph of a stone with a dark uric acid nucleus and phosphatic periphery. I do not believe that stones in the bladder or kidney can be located in the body, as they offer but little more resistance to the rays than the flesh itself, and not so much as the bones.

Where before it was impracticable to take many skiagraphs, owing to the necessarily prolonged exposure, now, thanks to Mr. Edison and his fluorescing screen and the improved technique, we are enabled to take pictures in one fiftieth the time formerly required. I obtained a distinct picture of a forearm in three minutes. This fluorescing screen consists of a thin screen coated with tungstate of calcium and held in direct contact with the sensitized film of the plate, the idea being to get the fluorescing crystals upon the film so that when under the influence of the rays their fluorescence will cause the chemical action in the film which, when the screen is not used, is caused by the comparatively low fluorescence of the silver salts alone.

With the shortening of the time of exposure, with the perfection of the fluorescent screen and "fluorescope," the improved technique and simple apparatus necessary, it is now possible to utilize the rays in ordinary surgical diagnosis, either in the office or hospital, and in so using them we have an agent whose evidence is not to be controverted.

213 New York Life Building.

MIDDLE EAR DISEASE IN RELATION TO DISEASES OF THE NARES AND NASO-PHARYNX.*

By John D. Simpson, M. D.

Minneapolis.

In almost all departments of medicine we hear a great deal said and see a great deal written as to the cause or causes of different pathological processes. In every case if the cause can be found, provided it is still operative and capable of safe removal, the principal indication for treatment is to remove said cause, and the next to repair, to as great extent as lies in one's power, the damages produced directly or indirectly by said cause.

It is a fact that in the past with all otologists, and at the present time with many, the chief or only aim in the treatment of diseases of the ear has been or is to repair the damages produced in the ear, with little or no thought of removing the cause.

Many pathological changes in the hearing apparatus respond favorably to treatment very slowly or not at all, but the causes of these changes in the ear are, as a rule, very amenable to treatment.

The middle ear is the part of the ear most often affected by disease. When we consider the intimate connection between the naso-pharynx and middle ear (the nose, throat, Eustachian tube and middle ear being lined with a continuous mucous membrane) it is easy to believe the fact that the majority of diseases of the middle ear arise as the result of some pathological condition of the nasal passages or naso-pharynx, either by an extension of inflammation or infection from the naso pharynx, or to interference with the proper ventilation of the middle ear through the Eustachian tube. Lennox Brown states as follows: "It is only by daily recognition and acknowledgment of this intimate connection between these three regions—the throat, the nose and the ear—that thorough work can be done in either. The mysteries of the larynx may be confined to the pure laryngologist, as may those of the internal ear to the aurist; but either one or other would be imperfectly explored if the investigator neglected to examine the avenues to and surroundings of these inner and deeply seated structures."

Many acute inflammations of the middle ear are due to an extension of inflammation from the naso-pharynx, but in most of these cases there is a preëxisting chronic affection of the nares or naso-pharynx which causes more or less constant venous hyperæmia of the walls of the middle ear, Eustachian tube and pharynx, thus keeping these parts in a condition in which both the pharynx and middle ear are very susceptible to attacks of acute inflammation. This condition of the middle ear of susceptibility to attacks of acute inflammation is a potent factor, not only in the development of acute otitis media from the extension of inflammation in acute pharyngitis, but also from many other causes, as from cold wind blowing into the ear or from the application of cold water to the membrane of the drum in bathing, etc., and also from infection in the course of the exanthemata. It is a fact that in many cases of chronic purulent inflammation of the middle ear following an acute attack in connection with measles, scarlet fever, or typhoid fever, we find just that condition of the nasal passages or naso-pharynx in which acute attacks of otitis media are apt to occur, and in children I have seen a number of cases of chronic purulent otitis media arising as a complication of the exanthemata, after a long course of treatment applied directly to the diseased ears without cure, get well at once after removal of adenoid growths from the vault of the pharynx.

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* Read before the Section of Surgery of the Minnesota State Medical Society, June 18, 1896.

I do not wish to imply that all acute inflammations of the middle ear are caused directly or indirectly by disease of the nares or naso-pharynx, but on account of the large percentage of cases which are known to be due to this cause, I believe that acute inflammation of the middle ear, including the ordinary earache of children, should be regarded as a symptom pointing to an affection of the nares or naso-pharynx, and although appropriate treatment of the acute otitis media must not be neglected, of much more importance in many cases after subsidence of the acute symptoms is the proper treatment of any preëxisting chronic affection of the nasal passages or naso-pharynx, thus preventing often a recurrence of the acute otitis media or its passing into a chronic affection of the middle ear with its consequent pathological changes and deafness, which often cannot be remedied by treatment.

Disease of the nasal passages or naso pharynx is not only an important factor in the development of acute otitis media as described above, but also causes most of the chronic diseases of the middle ear by causing a disturbance of the ventilation of the middle ear. This may be due to a contraction or closure of the Eustachian tube, from swelling of its mucous membrane, or to viscid secretion blocking up its pharyngeal orifice, or causing an agglutination of its walls. Obstruction of the tube is frequently due to pressure of the surrounding parts upon its orifice. This may result from adenoid growths, from swelling of the posterior extremity of the inferior turbinated body, and also from growths extending into the naso-pharynx from the nasal passages. Obstruction is also caused by defective action of the muscles of the tube and soft palate. Through the normal Eustachian tube air passes freely to the middle ear, when certain muscles contract, as in the act of deglutition, but when these muscles are at rest, as has been shown by Hartmann from his investigations in the pneumatic cabinet, no air passes through the tube into the middle ear under strong air pressure. On the other hand, when the normal air pressure is diminished to only a slight degree, the air is exhausted from the tympanitic cavity. This explains why affections of the middle ear so often arise as a result of narrowing of the nasal passages by growths, hypertrophies, or marked septal deviations. In this condition at each inspiratory effort the amount of air in the pharynx is reduced to such an extent as to exhaust by suction the air from the middle ear, thus producing much the same effect in the middle ear as that caused by a narrowing of the Eustachian tube. When the Eustachian tube is obstructed from any cause, the air contained within the middle ear disappears quite rapidly from absorption. Then the external atmospheric pressure being the greater, crowds the drum membrane and ossicles inwards. This condition, if lasting any length of time, gradually produces in the middle ear those pathological changes and deafness known as chronic catarrhal inflammation of the middle ear. These changes may go on very insidiously, and years may elapse before the patient becomes aware of any impairment of his hearing, or the disease may progress much faster, depending largely upon the amount of obstruction in the tube, and whether the obstruction is continuous or at times the tube is patent.

These conditions of the nares or naso-pharynx not only cause middle ear disease as above described, but in many cases of chronic purulent inflammation of the middle ear aggravate the disease by constantly keeping up a venous hyperæmia, often preventing the cure of the otorrhœa, and, if a cure is affected and the purulent discharge stopped, causing. in many cases, frequent relapses to occur.

Adenoid growths in the pharyngeal vault cause fully 50 per cent. of middle ear disease in children. These adenoids become atrophied with increased age, leaving often a non-progressive chronic deafness. As a rule, in middle ear disease. any departure from the normal condition of the nasal passages or naso-pharynx should be dealt with radically. The removal of adenoid growths from the vault of the pharynx, the reduction of any hypertrophic process within the nares, either by chromic acid, the galvanic cautery, or any other suitable remedy, and the actual removal of any obstructive deformity of the septum, or of an extensive hypertrophy of turbinated bodies which has failed to respond to less radical measures, will be necessary in order to prevent repeated attacks of acute inflammation, or the onward progress of a chronic affection of the middle ear.

Space will not permit me to enter into the treatment of diseases of the nose and throat causing middle ear disease, but I will simply refer you to the many excellent works on diseases of the nose and throat for the proper treatment.

Out of 4,946 patients treated during one year at the Central London Throat and Ear Hospital, only 1,980 were aware that they had any disease of the ear, but, upon examination of the others, nearly 1,000 more were found to be affected by middle ear disease in connection with disease of the nose or throat. This shows how insidiously changes may take place in the hearing apparatus, and emphasizes the importance of carefully testing the hearing of all patients who apply for treatment of diseases of the nose and throat, that proper treatment may be given to any existing affection of the Eustachian tube or middle ear.

It is not enough to simply make a diagnosis of ear disease due to obstruction or narrowing of the

Eustachian tube, but in every case the nature and cause of the obstruction should be determined by aid of the rhinoscopic mirror, and by inflating, preferably through the Eustachian catheter, while at the same time using the auscultation tube. In order to ascertain perfectly the state of the tubes and locate a stricture as well as remove it, it is sometimes necessary to make use of the Eustachian bougie, for, as pointed out by Urbantschitsch, a constriction may exist, generally at the isthmus tubæ while the permeability of the tube is apparently unimpaired. In inflating the middle ear the impressions of the patient as to whether air enters the middle ear or not, are often very misleading. These impressions may be corrected by the aid of the auscultation tube.

In closing, I wish to emphasize that often in diseases of the nares or naso-pharynx the middle ear is affected by chronic disease, often for a long time without the patient being aware of any trouble with his hearing apparatus; that often in disease of the ear caused by some affection of the nares or naso pharynx the patient is aware of the disease in the ear but not of any disease in the nares or naso-pharynx.

That the great majority of diseases of the middle ear are caused by disease in the nasal passages or naso-pharynx.

That these affections of the nose or throat are, as a rule, easily cured, while many of the pathological changes in the middle ear are amenable to treatment very slightly, or not at all. The early removal, therefore, of the cause of the middle ear disease is of very much more importance than treatment directed to the cure of pathological changes which have already taken place in the middle ear.

That middle ear disease should be regarded as a symptom pointing to disease of the nares or naso-pharynx.

565 Syndicate Arcade.

RADICAL CURE OF CRURAL HERNIA.*

By Knut Hoegh, M. D.

Minneapolis.

While there may be difference of opinion whether inguinal ruptures that can be retained by trusses are legitimate objects for the radical cure, a question that lies outside of the scope of the present paper, there seem to be very cogent reasons for believing in the necessity of operating upon the great majority of crural hernias. In the first place, crural hernias are very dangerous to life, which is easily seen when we remember that more deaths occur from them than from the inguinal variety, although there are seven to eight times as many sufferers from these. This will not surprise us when we consider that the openings or the rings as well as the canals are different; the larger and more yielding ring and the straighter canal explain sufficiently the slighter danger of incarceration and strangulation connected with inguinal hernia; the opposite conditions in femoral hernia do not only invite strangulation, but lead very rapidly to gangrene of the bowel. Next to the dangers connected with it, the pain and discomfort will often drive the patient, who bravely faces an unknown danger that is not immediately threatening, to seek surgical relief. The cause of the pain is usually adhesions preventing free peristaltic movement, thereby leading to colic or even attacks of peritonitis. A third reason for advising and performing the radical cure is the impossibility of retaining some of these ruptures by any kind of truss that can be tolerated by the patient. Finally, a great number of them are only partly reducible, for in this variety you will often find that either a slip of omentum or a loop of bowel is adherent to the sac or its neck. To wear a truss over such a projection is surely to invite disaster, and to go without one nearly as dangerous.

My personal experience with these cases will certainly bear me out in the statement that the presence of a femoral hernia is much more dangerous than a proper operation in skilled hands, while I trust that every surgeon and every practitioner in the country districts is fully aware of the dangers threatening the subjects of this infirmity, and very many of you can undoubtedly affirm the innocuous character of the operation.

My standpoint in regard to these cases is therefore a firm one for the operation in all cases of crural hernia, except in persons suffering from other diseases that impair the vitality and make any operative interference a hazardous risk. I also except persons that are old. I cannot draw an exact time of age and say that the operation is unjustified, after say fifty years of age, because some persons retain their youthful ability of regeneration longer than others. I will only say that I should extend the age limit longer in the case of patients with crural hernia than in those with inguinal. Besides the reasons already given in favor of this operation, as compared with that for inguinal hernia, I will point to the average difference in size. For the usually smaller femoral (or crural) hernia exhibits less dangers in the operation than the usually larger inguinal variety; longer time is consumed with a large hernia; a greater surface is denuded, and more secretions will take place to interfere with the ideal beauty of the healing process.

The diagnosis of a femoral hernia may be difficult, particularly in fat individuals. Typical cases do not offer any obstacles to a proper diagnosis, if ordinary knowledge, care and patience are brought to bear upon the subject, but there are atypical cases that may baffle anybody. For instance, where there is a mere slip of the omentum that has wormed its way out through the crural canal and become adherent to some portion of the sac, as is not infrequently the case. All you feel, then, is a dough-like or pasty little lump, somewhat tender on pressure, perhaps, but not reducible, nor does it give an impulse on coughing, nor can you feel the opening of the crural canal. The history of the case and the exclusion of any other condition will, in such cases, often lead to an appreciation of the true character. In cases of uncertainty it is at all events safer to proceed as if the case was one of hernia; for to treat a hernia as if it were a case of lipoma, enlarged gland, or suppurating bubo would be a more serious mistake than to commit the opposite error. In the majority of cases patency of the ring, impulse on coughing, tympanitic sound on percussion will lead to an absolute certainty.

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In comparing this form of hernia with the inguinal one, I have often been struck with the fact that it was found in persons of good muscular development who had not been engaged in particularly straining muscular efforts. I believe that this is not so in the acquired form of the inguinal hernia. Another feature that may be recollected is the fact that this hernia is not accompanied by important structures that may be wounded or otherwise injured during the operation, as the testicle and cord may be in operation for inguinal hernia. That there should be any danger to the crural vessels I cannot admit. They are well sheltered behind and outside the hernia, and would run no risk at the hands of an operator duly familiar with anatomy.

Another peculiarity of the crural hernia is its hour-glass shape or form; this is of great practical importance, because the constriction at the middle of the sac may be mistaken for its neck, and the operator may thus be led to perform an incomplete and therefore useless operation. A crural hernia has two distinct portions, one outside of the saphenous opening, and one inside of it. It is the first named that is apt to turn abruptly over the falciform edge and assume a direction upward and inward. The dissection of this portion is comparatively easy in many cases. The second portion of the hernia occupies the space between the saphenous opening and the inner ring of the crural canal, and lies, of course, much deeper, surrounded by large veins, which directly open into the saphenous or the femoral. Sometimes the sac of the distal portion of the hernia is very irregular, both in outline and in thickness, and its relations to the surrounding parts are often extremely difficult to make out by dissection. If there are adhesions of viscera to this portion of the sac there have been previous inflammations, and these have often united the sac and the surrounding connective tissue into one mass, to which even the omental slip may have become agglutinated. Then the sac may be infiltrated with fat so that the fibrous portion of it is exceedingly thin in some places, while it is dense and easily differentiated from the adipose and connective tissue in other parts. The operator may thus meet with serious difficulties even from the beginning, so that I should not advise everybody to undertake this operation, no matter how outspoken I am as an advocate for its necessity in proper cases. To overcome the difficulty just alluded to, I direct my dissection at once to the saphenous opening and proceed from this landmark, where you can always isolate the sac outwards.

The object of the operation for crural hernia and its various steps is the same as that for inguinal, and consists, briefly, in (1) isolation and drawing out of the sac; (2) opening of it to remove adhesions and put back viscera that must be reduced; (3) the removal of a greater or smaller portion of the omentum; (4) closure of the sac; and, finally, (5) the sutures. I shall consider these points in their order and give reasons for their necessity, where they do not seem self evident.

Some features of the isolation have already been alluded to. It remains only to draw attention to the necessity of making clean and bloodless dissections in working on the inner portion of the sac. Here it is necessary to tie or clamp every vessel before it is cut, and to dissect with the edge of the knife, and not tear with the fingers or with the handle of the instrument, whereby the true relations of the parts are obscured and finally lost. To carry the dissection far enough the crural canal must be incised, and this must be done directly upwards. If, by an unfortunate disposition of the epigastric artery this is cut, then nothing is safer than to prolong the opening and thereby be able to reach the bleeding point and tie it. It is advisable to dissect the neck out completely, for there are often adhesions just on its inside, and besides, the complete obliteration of the funnel-shaped opening of the sac, which below will be mentioned as the chief object of the operation, can only be obtained in this manner.

The second step in the operation to open the sac is not recognized by all operators as necessary, which is sufficiently proved by the various methods of disposing of the sac advocated by McEwen, Kocher, Banks, etc. The reason why it should always be performed in all radical cures is the possible presence of adhesions which otherwise may be overlooked. It is furthermore safer to be guided by vision than by the sense of touch, when the question is to replace a thin loop of intestine.

The third indication, consisting in the drawing out of omentum, is of great importance for several reasons. The first is that by removing a considerable portion of omentum more space is created in the abdomen, and consequently the intraäbdominal pressure, an undoubted factor in the production of a hernia, is materially diminished. The second is that omentum has a tendency to send out slips or projections like an amœba or a white corpuscle that tries to go through the stomata of a vessel. These projections insinuate themselves in any bulging process of the peritoneum. By their growth they gradually enlarge it, and thus pave the way for the descent of a bowel. When the sac is opened it is therefore my rule to introduce one or two fingers and hook down a portion of omentum. I use as much force as I think I can safely employ in getting down as large a part of it as possible. On one occasion I removed almost a pound. The stump is collected and tied very carefully by a Staffordshire knot or by knots in chains; never by a mass ligature, which may slip off in forcing the stump through the ring. The result of such an accident might be fatal hemorrhage. A final reason why omentum should be drawn down is that in this way unsuspected adhesions just inside of the abdomen may be discovered.

The fourth step consists in tying and cutting off the sac. To do this the sac must, of course, be freely dissected out; the finger must sweep the circumference of the inner ring, to be sure that this is really accomplished. Considerable force is used in drawing the sac down, and it is then tied by transfixion. After the stump is cut off the proximal portion ought to draw itself out of sight, thus showing that the funnel shaped opening is totally obliterated and displaced from the place where the anatomical relations favor its further development. In this high cutting off of the sac and the consequent effacement of the yielding portion I see the chief security against a recurrence of the disease.

The final step of the operation is the suture. The ring is sewed, and so is the crural canal. In uniting the latter it must be remembered that the needle must not be directed from one side to another, for in this way the femoral vessels might, unfortunately, be punctured, but from above downwards, which is absolutely safe, and also has a tendency to bring the ligament of Poupart downwards towards Gimbernat's ligament. In suturing the wound of the subcutaneous tissue and the skin, it must always be remembered that there be left room for drainage. It is advisable always to drain. The dissection and the handling of the tissues lead to a certain secretion, which it is much safer to lead away than it is to trust to the powers of absorption. There may, of course, also be some hemorrhage after the patient recovers from the anæsthetic and the heart regains its tone. The drain should not go deeper than the deep layer of the superficial fascia, and should be let out through the upper end of the wound. The secretions find their way out just as easily with this disposition of the drain as where it is pointing downwards. The idea that the secretions thus have to work against gravitation depends upon a purely theoretical assumption devoid of any foundation in fact. The reason for selecting the upper end of the wound is that it in this manner is further removed from the sexual and urinary organs, which, particularly in the female, are extremely fertile sources of infection. The suture is carefully executed. Buried catgut sutures are employed for the deeper layers.

The operation does not call for any special instruments. An abundance of hemostatic forceps and needles are needed. For ligature of vessels, which I try to avoid as much as possible by temporary compression, and by torsion, I use catgut sterilized by dry heat. The same material is used for ligation of sac and for all buried sutures. I have found that prepared by Dr. Boeckmann, of St. Paul, reliable and useful in every way.

Outside of the wound I sprinkle a mixture of one part iodoform and four parts of tannin; this is covered by a layer of iodoform gauze. Outside of this is applied four bags moderately filled with an antiseptic absorbent powder.* In these bags the secretions are absorbed, sterilized and dried, thus enabling me to have the first dressing on for one week. Outside of these bags, that are retained by roller bandages of sterilized gauze, comes for further protection corrosive sublimate gauze. This is held in place by a very voluminous dressing of cotton, which produces by its elasticity an even pressure, and prevents slipping of bandages.

After one week the dressing is renewed and the drain removed.

One or two more dressings take place in the remainder of the time the patient has to remain in bed, in all three weeks. At the end of this time the patient is allowed to sit up.

When the scar seems entirely solid, in four to five weeks after the operation, a light belt provided with a hard pad is applied. This must not be confounded with a truss, as its object is entirely different, and its construction not less so. Its object is to support that part of the abdomen which is above the scar, so that the intestines be prevented from pressing down upon the yet yielding wound and sutures and not to block up the crural opening, which is the object of an ordinary truss. It is not provided with a spring. This bandage is worn six months. To wear a truss pressing upon the scar leads to atrophy of it, and is objectionable.

I have operated upon four cases in this manner, and have had uninterrupted recoveries. In three cases more than one year has elapsed since the operation; there is no recurrence, and the patients are free from their former pains.

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* The antiseptic powder that I use to fill the bags with consists of equal parts by weight of cinchona bark, iodoform, gum benzoin and magnesium carbonate impregnated with as much oil of eucalyptus as it will hold.

I shall briefly relate the symptoms of the fourth case which I operated upon two months ago, to show the difficulty of diagnosis, and the necessity for the operation.

O. H., commercial traveler, 38, single, a strong man of good habits, a hard worker. In December, 1894, he was, when apparently in perfect health, taken with sudden pain, gradually increasing; it was felt over the whole abdomen, most in its lower parts. In character it resembled the gripings of a common bellyache; there was no vomiting; it was so intense that he had to get off the train, on which he was traveling, and go to bed in a hotel. After one day he was well enough to continue to travel; in a couple of days he had completely recovered. In May, 1895, he had a similar attack, but more severe; this time the pain lasted one week, was most pronounced in the right side of abdomen. Competent physicians thought he had appendicitis. While he was out of bed in one week he had pain of a gradually diminishing character for four weeks. After this, complete recovery. In September of the same year he had another attack; a very able physician, whom I know as a careful examiner, recognized that he had peritonitis, but could not find the starting point of this inflammation; thought, however, that it was not appendicitis. This attack was the severest one he had had, and he did not regain his good digestion after it. There was always a feeling of oppression in the cardiac region; he could not bear every kind of food; had a tendency to constipation. I saw him some time afterwards, and could not make out the nature of the attacks; his whole system was carefully examined and no tenderness or swelling was discovered anywhere, particular attention being paid to the region of gall bladder, McBurney's point and the hypogastric region. Needless to say that lungs, heart, liver, spleen, rectum and urine were examined. The stomach contents were examined after a Leube's test breakfast, and the absence of muriatic acid and pepsin determined. The case might be interpreted in various ways, none of which seemed to offer any certainty of being the right one.

In March, 1896, he had a new attack. Led by my previous questions he now observed himself carefully, and was sure of the following conditions: The attack was not preceded by constipation; it started when in bed at 5 A. M.; as of a griping character, felt all over abdomen, mostly in its lower part, more on right side, perhaps. Two hours after the beginning of the attack he had a free movement of the bowels without relief. His bowels had been perfectly regular before the attack. After the attack he was constipated for four days, when he moved the bowels with a dose of Hunyadi Janos water. He had no pain after five days when he was quiet, but griping would return when he walked. I examined him April fifth, and found some tenderness below the navel and to the right; a certain fullness in the region of the right Poupart's ligament was observed. The next day I discovered that the right inguinal canal was open, but contained no hernia; but below a line drawn from spina ilei to tuberculum pubis was found a soft, elastic swelling, size of a filbert; it was somewhat tender on pressure, immovable. The cribriform fossa was not detected by palpation.

It was supposed that the soft, elastic tumor was a hernia of omentum that had slipped through the crural canal. It had not been detected by me before, partly, at least, because the patient had been very fat, but he had now lost twenty-five pounds.

The diagnosis was reached partly by exclusion. Dr. Boeckmann, of St. Paul, and Dr. Alfred Smith, of Minneapolis, concurred in the diagnosis, and advised operation.

By this the correctness of my assumption was proved. The omental slip had become adherent to the fundus of the sac outside of the saphenous opening; there was quite a little omentum in the crural canal, and adhesions to the neck of the sac. The operation was difficult on account of the adhesions and the proximity of the cæcum. A loop of thin intestines seemed to be on the point of descending into the crural canal, but was not contained in it. About one ounce and one-half of omentum was resected.

The patient made an uninterrupted recovery and is now perfectly well eight months after the operation, without a sign of relapse or a symptom of the old cramps.

Dr. Caton, in a paper read before the British Medical Association, urges the importance of a more active treatment of rheumatic endocarditis than is usually employed, with the view of arresting the disease if possible in its initial stages. As soon as any bruit is detected, a series of small blisters, each the size of a florin, is applied along the course of the third, fourth, fifth and sixth intercostal nerves in front and at the sides. Only one is applied at a time, and the different exit points are covered consecutively. In this way the blisters give rise to no pain or inconvenience. At the same time sodium or potassium iodide, in eight or ten grain doses, thrice daily, is administered, and the ordinary salicylate treatment is continued. Lastly, the patient is kept in hospital for six weeks, most of the time in bed. Under this treatment most of the writer's cases (twenty-nine out of forty) in which symptoms of acute endocarditis had supervened left the hospital with, so far as could be detected, a perfectly normal heart.—*Record.*

Northwestern Lancet.

ALEX. J. STONE, M. D., LL. D.,
WM. DAVIS, M. D., } *Editors.*

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THE DISCRETIONARY AUTHORITY OF SURGEONS.

A good deal of discussion has lately arisen in some of the law journals over a case recently tried in England, in which action was brought against a London surgeon by a hospital nurse upon whom he had performed a double ovariatomy. The woman alleged in her complaint that before undergoing the operation she distinctly forbade the surgeon to remove more than one of the ovaries; it appeared that she was engaged to be married, and after the operation she broke off the engagement from conscientious motives. The defense was that by submitting to operation the patient gave at least tacit consent to the removal of all parts so diseased as, in the opinion of the operator, to require it. Unfortunately in the progress of the case the issue of chief interest was lost sight of, and the result practically vindicated the course of the surgeon.

The important point in this matter is whether the surgeon who undertakes an operation has the right to use his own judgment as to just what shall be done, regardless of what the patient has consented to beforehand, or still more in the face of a direct prohibition limiting the extent of the operation. Ordinarily the question does not arise. It is customary for the patient to submit to operation and tacitly leave it to the judgment of the surgeon as to what shall be done, a matter which, it is well understood, cannot always be determined before the operation is undertaken. This is particularly true of abdominal operations, where the opening up of the cavity often reveals a state of affairs quite unsuspected by either patient or surgeon. In emergencies operations are sometimes done quite different in character from anything that had been contemplated, as when, during the course of an operation, a tracheotomy becomes necessary owing to obstruction to the breathing resulting from the narcosis. A life or death operation of this kind would be little likely to be called into question, or at least objection to it would not be likely to be successfully maintained. So, too, in amputations, an operation begun with the expectation of going below a joint may, after all, need to be carried above. If the patient's consent to the greater operation had not been obtained trouble might arise, but it is doubtful if the objection would hold, although it would certainly be wise in these cases always to have consent to the performance of the operation that proved to be necessary.

A class of cases quite apart from what is usual is that to which belongs the one quoted above. Here it was alleged that the patient expressly prohibited the removal of both ovaries, and, as the double operation would, according to her views, debar her from her contemplated marriage, it is easy to understand how the patient might prefer to keep a diseased and dangerous organ and take her chances with it rather than to give up all hopes of marriage. Surely such an one would not be the first woman who had risked life for the sake of marriage, and it would be very hard and unfair to deny her the right to make a choice.

What is the duty of the surgeon in a case where the patient refuses to give him unlimited discretion in the matter of operating? At the trial of the case which forms the subject of this article, the defendant surgeon as well as Sir Spencer Wells, Lawson Tait and other eminent men testified that they would refuse to perform an operation in which they were limited by any such restriction as the plaintiff claimed to have imposed.

From a professional standpoint it is undoubtedly desirable that the hands of the surgeon should not be tied in an operation, but that he should be left to do whatever in his judgment was for the best interests of the patient. Is it not, however, somewhat arbitrary to refuse to the patient any choice in a matter involving, perhaps, the sacrifice of a limb, or, as in this case, the loss of the power of procreation? May not a man of ordinary intelligence chose to keep a limb at the risk of life without the surgeon's feeling it incumbent upon him to say, "Give me leave to amputate or I will do nothing for you?" The science of surgery has not reached that exactness that warrants laying down the law and denying to the patient all right of judgment in a matter in which he is the one chiefly concerned, and it is not in keeping with the humane principles that should guide the medical profession to refuse all aid to a man because he makes a choice that is unwise when judged from a professional standpoint.

REPORTS OF SOCIETIES.

MINNESOTA STATE MEDICAL SOCIETY.

SECTION OF SURGERY.

William Asbury Hall, M. D., Chairman.

June 18, 1896.

Dr. Hall: The program this afternoon is very full; that is to say, we have nineteen papers on the list, and we cannot read all of them. I trust if on account of want of time some papers are dropped out the authors will have no hard feelings against the chairman of the section because it seems necessary so to do.

A paper entitled

THE DIAGNOSIS OF INTESTINAL OBSTRUCTION

was then read by William Asbury Hall, M. D., of Minneapolis.

See page 473.

Dr. Mayo: Dr. Hall has very kindly requested me to open the discussion of this very good paper, but there are nineteen papers on the program for this section, and I shall not feel justified in taking up much time. I am very glad in his remarks the doctor did not speak much about the pulse and temperature. Too frequently the pulse and temperature have been used as a guide when they indicate nothing in a large number of cases. The pulse and temperature are of secondary importance, and, except in some instances, have been of little value. There are many symptoms of obstruction of the bowels, and it must be apparent to the mind in making a differential diagnosis whether there must be an operation or not. In regard to appendicitis, we all know there is an acute peritonitis set up of the appendix, and we get vomiting and signs of obstruction of the bowels. If in those cases an examination is made the pulse and temperature become a guide, because peritonitis is indicated by the pulse and temperature, and in those cases the question of operation becomes apparent at once, and it should be made under such circumstances. Those cases of obstruction, I think, it would be well to divide into acute and chronic. This matter of operating on every case of obstruction of the bowels is an important one. In some cases the condition of the patient will not allow an operation—it is too full of danger—and, again, it should not be forgotten that in many cases of obstruction of the bowels an operation leads to very little good; but in those cases we get a very rapid pulse, and in ordinary cases of obstruction of the bowels those symptoms are almost entirely wanting. In regard to distention, there is that condition where there is no distention of the bowels whatever, yet it amounts to the same thing, and an operation could not save the patient.

Dr. Dunn: The subject is a very deep one for such an afternoon. (Laughter.) In reference to the indicated test for obstruction of the bowels the temperature has a certain worth, but there are so many bowel troubles in which we get this reaction that I should not feel like placing great stress on it. It seems to me the most difficult forms of obstruction of the bowels to diagnose or understand are those of mechanical obstruction, as I understand the doctor to refer to. Two classes of cases are very positive. I remember a case in which I was called to see the patient who was suffering with great pain in the abdomen; I made a positive diagnosis of appendicitis. I thought then there ought to be an immediate operation, but, as it was past midnight and under very unfavorable circumstances, I advised deferring the operation until morning. In the morning the patient was better apparently, and I warned the attendant and friends against making too much of this betterment, because I did not regard it favorably, to say the least. I heard no more of the patient for some time, but when I did I learned that the patient had had an operation performed for obstruction of the bowels, performed by a friend of mine, and that the patient had died. I supposed from what was said there was no peritonitis, and at the autopsy I found there was no appearance of peritonitis, but the patient died of appendicitis. There was a slight adhesion of the small intestine, enough to interfere with its action, which gave rise to the symptoms of obstruction of the bowel. Now in this class it seems to me we have got to depend upon the diagnosis, and all depends upon a good history of the case in the beginning. In the case I referred to, it was a difficult matter to make a diagnosis the first day or two, and the gentleman who saw the case later did not get a clear history of the case, and he called it obstruction of the bowels. He evidently did not think he had a case of appendicitis. Another class of cases that try me very much are those of operations for umbilical hernia. I had a case where it was thought there was an obstruction of the bowels, and the question was to open or not. The patient was no better after laparatomy was performed, and there was quite a consultation called, and we concluded to reopen the abdomen. Reopening the abdomen is a very serious matter, and it is practically fatal in most cases. Still we opened this abdomen, but found nothing except that the bowel was contracted by muscular spasm. The patient died, and I think it was a very great error to reopen the abdomen. Those are the classes of cases in which I have found it difficult to know what to do, and know how to make a positive diagnosis of the ordinary cases. While there may be some difficulty in making the diagnosis of mechanical obstruction, it is after those cases of laparotomy, after the operation of laparotomy, where we have inflammatory symptoms in the abdomen, as in the case of appendicitis I referred to, that we have the most difficulty, although that seemed to me a very positive case. In this case there was no use whatever in opening the abdomen? If anything could have done any good, and I presume it could not after the first twenty-four hours, or forty-eight hours, it would have been an operation for appendicitis.

There followed a paper entitled

TRAUMATISMS OF THE ABDOMINAL VISCERA,

by William H. Magie, M. D., of Duluth.

See page 471.

A paper on

INTESTINAL ANASTOMOSIS

by Charles W. Oviatt, M. D, of Oshkosh, Wis., was read by title.

HYSTERECTOMY

was the subject of a paper by James H. Dunn, M. D., of Minneapolis.

See page 467.

Dr. McLaren: This is a very interesting and instructive paper. Dr. Dunn shows us or aims to call attention to the weak diagnostication, we are still in the embryonic period. We have only just changed our views in regard to the old pathology of pelvic diseases, and frequently we must change our clinical and diagnostic process. Of course conservatism is what every surgeon aims at. While we are at sea in regard to pelvic diseases, we have, all of us, performed operations which we would condemn today. That it is better to cure a limb or a diseased member than it is to remove it we will all admit, because conservatism has been the ground upon which every surgeon has been working for the past many years. When we take up hysterectomy, I believe the time is now dawning upon us when hysterectomy will be performed less often than it has been for all sorts of pelvic diseases, especially for pelvic inflammatory diseases. There are certain diseases of the uterus which cannot be reached except by hysterectomy, but, if most of the inflammatory cases can be cured without, what do we gain by performing a long and dangerous operation? If many can be reached and drained through the vagina you will have lessened your mortality, you will have increased the number of cures and leave the woman with her organs still in the body. There is no question in my mind but what a great many uteri have been removed that could have been better treated without the operation, but when we come to cancer I question very much whether the combined operation of vagino-abdominal laparotomy with the section of the broad ligaments is going to improve our statistics one bit, and when Dr. Kelly takes two or three hours to perform this operation what can the rest of us hope to do. It seems to me in vaginal hysterectomy the cancer should be completely excised wherever the disease is confined to the cervix. My judgment would be, from the knowledge we have, that vaginal hysterectomy should be the rule only in early cases. When cancer has reached the broad ligaments I doubt whether any surgery is going to relieve the woman, except temporarily sometimes. Dr. Byrne, of Brooklyn, who for twenty years has advised the use of the cautery knife, has been rather the laughing stock of his friends, who all admit that he is perfectly honest; still there is no man who is doing vaginal hysterectomy who can come within 30 per cent. of his results. He has probably operated on cases that were not cancer in the first place. We can all make a mistake; we have made it before when we said our pathology was perfect. When the cancer gets into the broad ligament outside of the cavity of the uterus I doubt very much whether any operation can accomplish very great results. (Applause).

Dr. Dunsmoor: Dr. Dunn has touched on one point I wish to speak about in regard to hysterectomy in fibroid disease. I have not had the experience of some men whose names he quoted, but I certainly have had enough to know that it is not the large fibroid which is the most disastrous, nor the most difficult to remove; neither do I believe it is always the large fibroid which has a tendency to degenerate into malignant disease. If the large fibroid does not interfere with the comfort of the person afflicted with it, it is safe to advise to leave it alone. Those cases that Dr. DUNN mentions did not come within the uterine cavity at all. That is, all those cases of uterine fibroids which, being treated without removal of either tumor, uterus or ligation of vessels, and subsequent malignant disease developing, the cancer invariably appeared in the intestinal tract, causing obstruction often attributed to the fibroid. It has been my rule to operate for fibroids when interfering with the general health, either by pain, hemorrhage, digestive disturbance, etc., or when the size interrupted social or domestic relations. As to the mortality in hysterectomy, certainly the size of the tumor has little to do with it, compared with results when the operation is made for malignant disease. Again, the skill of the operator is of more importance here than in any operation save in those upon the common bile duct.

Dr. DUNN: I do not know that I have anything to say further than to confess that my paper was very wandering, and that some of the remarks which have been made lead me to believe that I have been somewhat misunderstood. I am one of those who take no stock in Dr. Byrne's cautery as being especially curative in uterine cancer. I do not believe it makes a particle of difference whether carcinoma be removed by the knife or by the cautery so far as recurrence is concerned. I regard that as nonsense, but I do believe that Dr. Byrne has shown one thing, viz.: that so far as cure is concerned, an amputation of the cervix in certain cases is quite as good as removal of the whole uterus. You can prove anything by statistics, provided only that you judiciously gather your statistics in your own innocent way. Schroeder proved by statistics that high amputation gave a far higher percentage of cures than total hysterectomy. Of course, we know what that means; it don't mean anything, even though in mathematical terms it demonstrates a part to be greater than the whole. Had these same cases been submitted to total hysterectomy, would they on that account have relapsed? I do not know whether the small fibroid is especially liable to malignant degeneration, as Brother DUNSMOOR suggests, but the two cases referred to were, I should have mentioned, seen with him. He had one of those cases under observation for ten years. In the light of subsequent events it appears that we would have done better in these cases to have advised removal of these small, nearly symptomless, and quite stationary fibroids, but I am far from sure whether we ought to evolve a fixed rule from these cases. First, they may be exceptional; second, we are not at all certain that the fibroids stood in a causative relation to the cancerous process, which might have arisen primarily in neighboring tissue and invaded the fibroids. In short, it was not my intention to dogmatize or lay down rules for the indications for the removal of fibroids, but to elicit discussion and opinions, and get at the experience of the members of the Society.

Dr. CHARLES H. MAYO, of Rochester, read a paper entitled

FOREIGN BODIES IN THE AIR PASSAGES AND ŒSOPHAGUS.

See page 479.

Dr. ANDREWS: I think the paper is exceedingly practical. In ordinary cases of practice that come into our hands we have always a little time to consider, but in cases of foreign bodies in the œsophagus and trachea it is often necessary to act promptly and wisely, and I think in those cases we are frequently too conservative; we are too liable to trust to nature and let our patient die rather than interfere by a surgical operation. I have in my mind now a case which had a fortunate termination. A man seventy-five years old about three years ago claimed that he had swallowed a piece of shell in attempting to swallow an oyster, and that the shell had gone into his lung. He claimed he could feel the shell moving up and down in the air passage. His attending physician thought very lightly of the matter, and rather laughed at the idea, so much so that the man was discouraged and consulted another physician, but by that time the foreign body had fixed itself pretty well down in the left bronchus and was getting up in the vicinity considerable disturbance. An examination was made, but nothing was found that would lend color to his claim, but the man had a continual cough, he lost flesh and he lost sleep, and it was a great annoyance to him. Fortunately, however, one morning he coughed rather violently, and he felt something come up in his throat. He fell in a swooning condition, a physician was sent for, and the oyster shell came out of his mouth. I have the oyster shell preserved in my office now. That case terminated very fortunately, but if it had not happened as it did it is probable it would have terminated unfortunately. Had an early operation been resorted to in that case it would have been a wise one. When the foreign body was working up and down in the trachea it would have been an easy matter and a comparatively safe operation to have removed it. I say again it is a very important paper for this section, because it may not be very long before we will meet a case of that kind. We cannot send it to Rochester; we cannot send it to Minneapolis; something must be done at once, and it is wise to consider these cases and know how to act. (Applause.)

Dr. DUNN: There is one point in Dr. MAYO's paper which seems rather practical, and that is the mention made of the thumb forceps used in extracting those foreign bodies from the trachea, but

I suppose the kind of instrument depends very much upon the body to be removed. I have an alligator forceps which becomes very useful sometimes in such cases. I remember one instance particularly where I found no other instrument would have done as well. The boy had a large cartridge shell in one bronchus, and it was wedged in very tight, and the covered end happened to be down. I located the shell with the probe, and I slipped the long alligator forceps in behind the edge of the shell and got a very firm hold, and it was astonishing the amount of force it took to dislodge that shell, and probably no other form of instrument would have got hold of that particular case as well. If it had been drawn in the other side up I do not believe the forceps would have worked as well. It would have been more difficult to get it out, at least. It depends upon the foreign body you have to deal with, but I would never do without a good pair of alligator forceps.

Dr. E. J. Davis: The subject selected by the writer in the paper presented is an exceedingly practical one. Many such cases come under the observation of us country practitioners, and we do not all claim to be skillful and successful operators. A case occurred in my practice a short time ago in which the foreign body was removed without an operation. I received an urgent call to come to a house a couple of blocks from my home by a father of an eight-months old child, stating that it had swallowed something which stuck in the throat, and was afraid that it would choke to death. The parents were unable to tell me what it had swallowed, but the mother, very much excited, was positive it was there, and feared that unless it was immediately removed her babe would die. I adopted the method of reversing the child, and had the fathar grab it by the legs, letting the head swing down. By pressing the forefinger firmly on the base of the tongue, while it was in the reversed position, it caused it to cough and then dropped an open, small safety-pin on the floor. Being in the evening, and having only a lamp to work by, the operation was necessarily attended by some inconvenience; yet the method adopted proved to be very satisfactory in this case. I learned a practical lesson from this case. If any of you should have a similar one, try this simple method; if you do, you will be delighted with the result.

A paper entitled

RADICAL OPERATION FOR FEMORAL HERNIA,

was read by Knut Hoegh, M. D., of Minneapolis.

See page 10.

Dr. Hall: I regret very much that we have no time to discuss this valuable paper, but it is now five o'clock, and we have only time left for four more papers of from seven to ten minutes each.

The following papers were then read:

CONSTIPATION FROM A SURGICAL STANDPOINT,

by Charles T. Allen, M. D., of Minneapolis.

IS EXTIRPATION OF RECTAL CANCER A JUSTIFIABLE SURGICAL PROCEDURE?

by Claude M. Ferro, M. D., of Minneapolis.

See page 482.

MIDDLE EAR DISEASES IN RELATION TO DISEASES OF THE NOSE AND THROAT,

by John D. Simpson, M. D., of Minneapolis.

See page 8.

THE X-RAYS,

by Arthur A. Law, M. D., of Minneapolis.

See page 6.

Dr. Hall: The remaining papers of this section will be read by title, and as it is nearly six o'clock, if there is nothing further to come before the Section I will now declare it adjourned.

MISCELLANY.

TWELFTH INTERNATIONAL MEDICAL CONGRESS.

The American National Committee of the Twelfth International Congress, which is to meet at Moscow, Russia, from August 19 to 26, 1897, consists, according to the directions of the general committee, at Moscow, of the following gentlemen: S. Weir Mitchell, Philadelphia; J. S. Billings, M. D., New York; Frank P. Foster, M. D., New York; Charles A. L. Reed, M. D., Cincinnati; Geo. B. Shattuck, M. D., Boston; F. J. Shepherd, M. D., Montreal; Geo. F. Shrady, M. D., New York; W. S. Thayer, M. D., Baltimore; and the Chairman, A. Jacobi, M. D., 110 West Thirty-fourth street, New York.

The Chairman begs to invite the attention of the medical profession of the United States and Canada to the fact that the professional gentlemen in charge of the Congress are anxious to make it a success both from a scientific and a social point of view.

Their difficulties are unusually grave; but it is not their fault that the Congress had to wait for governmental permission to meet in their country, or that a special ukase was required for the admission into Russia of Jewish medical men on equal terms with their Greek, Catholic, Protestant, Agnostic and Mohammedan colleagues; or that the famous and meritorious Secretary-General was (it appears because of his liberalism) ousted both from his place and from his professorship. They should not be held responsible for the political semi-barbarism of the country in which they live and to whose laws they have to submit. Their position in the world of science, and their endeavor to make the Twelfth Congress equal to its most famous predecessors, will prove an incentive to

American physicians to sustain, both by their presence and their contributions, the Russian Committee in its exertions to make the next Congress equal to its predecessors.

Such information as shall be received from time to time will be published in the medical journals immediately after its arrival.

BOOKS AND PAMPHLETS RECEIVED.

A Treatise on Surgery. By American Authors. Edited by Roswell Park, M. D., Professor of Surgery and Clinical Surgery, Medical Department, University of Buffalo, Buffalo, N. Y. In two very handsome octavo volumes, comprising 1600 pages, with 786 engravings, largely original, and 37 full-page plates in colors and monochrome. Volume I, General Surgery and Surgical Pathology. Volume II, Special Surgery. Price per volume, cloth, $4.50; leather, $5.50. *Net.* Lea Brothers & Co., Publishers, Philadelphia and New York.

Anatomical Atlas of Obstetric Diagnosis and Treatment. By Oscar Schaeffer, M. D. Volume V of "Wood's Medical Hand Atlases." New York: William Wood and Company. 1896. For sale by subscription. Price $15.00 for the set of five.

Further Observations on the Treatment of Spasmodic Torticollis. By Maurice H. Richardson, M. D., and George L. Walton, M. D. Reprint.

The Microscopical Proof of a Curative Process in Tuberculosis; or the Reaction to Tuberculin Evidenced by Blood Changes Hitherto Unrecognized. My Latest Improved Binaural Stethoscope. By Charles Denison, A. M., M. D. Reprint.

NOTES.

A CASE OF CHRONIC PLEURISY WITH EFFUSION TREATED WITH PROTONUCLEIN.

By Almon H. Cooke, M. D.

Instructor in Medicine in the Medical Department of Niagara University.

Buffalo, N. Y.

On June 2, of this year, a lady came into my office in a greatly disturbed state of mind. She was very thin, having lost ten pounds or more, and complained of severe pain at the base of her right lung, when she took more than a shallow inspiration. She also said that there was a sensation of fluid running in her chest when she brought it to a horizontal position. Her temperature was 100.5° F.

On examination there were evidences of adhesions at the base of the right lung, also indications of a small amount of fluid which I suspected would be pus. However, the exploring needle proved it to be of a serous nature, slightly cloudy, due to the presence of a few pus cells. The following treatment was outlined, and, I am happy to say, was faithfully executed:

Protonuclein tablets, three grains (Reed and Carnrick), half an hour before meals and at bedtime, subsequently increased to five tablets *per diem.* Also ten minims of fluid extract of cascara at bedtime, to regulate the bowels, which were in a torpid condition. Besides this, the surface over the painful area was painted with iodine every second or third evening, as the condition of the skin permitted.

Her diet consisted of not less than half a pound of lean beef or chops at two meals each day, with vegetables in limited quantities, to which was added half a pint of cream each day, to be consumed in a manner most agreeable to the patient.

The result of this treatment was, that the patient gained flesh at the rate of a pound a week and strength in accordance. The temperature became normal at the end of the second week, and deep inspiration gave no pain early in the third week. No trace of fluid could be found by the tenth day, while after eight weeks of treatment the patient declared that she never felt better in her life.

This case seems to me to be one which demonstrates the beneficial properties of Protonuclein, especially when combined with a nourishing diet. There can be no doubt that this case would have terminated in empyema, and that very shortly, had active treatment been delayed; and I believe that many cases of pleurisy with an effusion which is not absorbed so rapidly as it ought to be, would be speedily cured by a treatment substantially the same as the one employed in this case.—*New York Medical Journal.*

A USEFUL PUBLICATION.

Victor Koechl & Co., importers of some of our most valuable modern medicinal preparations, such as Antipyrine, Diphtheria Antitoxine-"Behring," Lanoline, Dermatol, Tuberculin, etc., are publishing a little monthly entitled "Therapeutic Progress," devoted to brief reports and condensed abstracts pertaining to new remedies. Each issue contains something of practical interest to the physician. We have during the past year numbered this little paper among our exchanges, and can vouch for its practical helpfulness and also for the ethical and scientific manner in which it is edited. Any physician who desires to keep informed in regard to the newer remedies, can receive "Therapeutic Progress" free of charge during 1897, by addressing a request to Victor Koechl & Co., 79 Murray Street, New York.

POST-GRADUATE COURSES.

The Chicago Policlinic offers unexcelled facilities for post-graduate work, and the student or physician who contemplates doing such work will obtain much interesting information by writing the Chicago Policlinic whose announcement appears regularly in our advertising columns.

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If you contemplate taking a post-graduate course in General Medicine, Surgery, Genito-Urinary Surgery, Diseases of the Rectum, Orthopredics, Dermatology, Gynæcology, Obstetrics, Diseases of Children, Diseases of the Eye and Ear, Nose and Throat, or Diseases of the Nervous System; or if you desire to perfect yourself in Pathology, Microscopy, or Bacteriology; or wish to dissect, or take a course in operative surgery on the cadaver, write the Policlinic for any special information you desire. Address Dr. F. Henrotin, Sec'y,
174-176 East Chicago Ave., Chicago, Ill.

Dr. C. A. Zimmerman, Bluffton, Ind.: I am thoroughly convinced of the efficacy of "Sander & Son's Eucalypti Extract, Eucalyptol," in the treatment of catarrhal affections with a tendency to invade trachea, larynx and bronchi. I saw disease stopped short in very severe and protracted cases by employing that drug, which I now consider to be the most serviceable in all affections of the respiratory tract.

THE UNTOWARD EFFECT OF SUBSTITUTES.

A. M. Collins, A. M., M. D., of Shelbyville, Ill., writes, under date of November 2, 1896: "I never realized the vast difference between genuine antikamnia and the various substitutes that are being palmed off until the past few days; and the realization was all the more pronounced because I myself was the patient.

"For four weeks I had been suffering with neuralgia of a very severe type and attended with considerable febrile movement. I tried the various compounds and other preparations, lauded as 'just as good,' but with no real advantage and with no little heart disturbance.

"On Saturday I went to Arcola, and while there was taken very sick with one of my neuralgic attacks. I sent to the drug store for some genuine antikamnia, and to be certain about it, procured an unbroken original package. I took it in eight to ten grain doses at intervals of two hours. The effect was magical. The first dose relieved the severity of the pain, while the second quieted it entirely, and I went to bed, sleeping all night with but one awakening of a few moments only, a thing I had not done in four weeks. This experience on my own person has thoroughly convinced me of the superiority of the genuine antikamnia."

S. L. Reed, M. D., Highland Park, Ky., Oct. 28, 1896, writes: "Have only time at present to copy notes in reference to case in which I used Bromidia. Was called suddenly early on the morning of June 10th to see Mrs. McG Patient had been under treatment of Dr. R., who had been called, but failed to answer. Found patient suffering with acute mania, very violent and destructive. On questioning family, found patient had delivered herself four days previous of a three months fœtus. Since that time patient had been receiving enormous doses of morphine with no apparent result. As the patient was beyond control, improvised a straight jacket of her husband's sweater and bicycle belt. Ordered half ounce of Bromidia (Battle & Co.) every half hour until quiet. In two hours patient was sleeping. Patient continued to receive Bromidia whenever indicated, along with other treatment, and in a few weeks was apparently well, although Dr. R. still has her under observation. This will show the superiority of bromidia over morphine, especially in cases with head symptoms. I have had moderate success with Iodia, but could sing the praises of Papine in several columns if I had the time."

THE DIET IN CHRONIC DIARRHŒA OF INFANTS.

If the child be under one year of age the diet must not go beyond the range allowed at that period of life. Barley water and whey, perhaps milk, according to circumstances, and Mellin's Food, raw meat juice, white of egg or yellow of egg with water, mutton broth, weak beef tea, is a sufficient list of foods. It is generally asserted that animal broths are deleterious in diarrhœa. Used in small quantities cold I have not noticed any prejudicial effect, and certainly the number of stools has not appeared to be increased. "Treatment of Disease in Children," Angel Money, M. D.

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ORIGINAL ARTICLES.

CLINICAL OBSERVATIONS UPON THE TREATMENT OF IDIOPATHIC EPILEPSY.*

By A. W. Dunning, M. D.

St. Paul.

Probably in the whole realm of medicine there is no disease that has received so much attention from writers and yet in the treatment of which so little real advancement has been made as in that of epilepsy.

The tendency of the literature upon this subject has been to advocate the use of one new remedy after another, only to relegate each to the background successively, as time and experience prove it to be ineffective.

This tendency leads the young practitioner to follow the same course, and to search eagerly among new remedies for a specific for his epileptics, until at last he gives up his search and falls back upon the time-honored bromide treatment.

Finally, it is the tendency in the use of these agents, as is apt to be the case with any remedy which stands practically alone in its influence over a given condition, to prescribe them in an entirely routine manner without regard to the conditions in each individual case, and to trust to Providence that this particular case may be one of those which go to make up the small percentage which are relieved by the bromides alone.

It is not the purpose of this article to advocate the use of any new remedy for epilepsy, but from clinical observations in a considerable number of cases occurring in my private and dispensary practice, to tabulate some suggestions as to the treatment of the patient, which I believe to be of value.

In the first place treatment should be commenced early, since the "epileptic habit" is rapidly established and the chances for ultimate recovery are greatly lessened with each successive attack. If it be true, as Gowers says, that "the cause of most cases of idiopathic epilepsy may be found in the cause of the first attack," then certainly the importance of early diagnosis cannot be overestimated. Many cases of epilepsy begin with attacks of petit mal, and the writer believes that the proportion so beginning is much larger than is generally supposed. Often, too, these attacks are overlooked by the physician, or are pronounced simple vertigo or "faint spells," and proper treatment is neglected until finally an attack of the major type reveals the true nature of the case. And indeed it is not infrequent that cases of the major type even go unrecognized because of carelessness or lack of thoroughness in following up the history of the attacks. Every case of infantile convulsions, and every case of night terrors of childhood, should be treated as though it were a beginning epilepsy; and every case of "faint spells," vertigo, dizziness, double consciousness, and even every case of migraine should be looked upon with suspicion until the attendant is thoroughly satisfied as to whether these attacks are or are not epileptic in character.

Let me emphasize, then, the importance of early diagnosis.

Of medicines used in the treatment of epilepsy the bromides stand practically alone in their power to produce a decided and lasting effect. It is very important in the use of these agents to secure those of the purest quality possible to obtain, and we should not hesitate to specify the product of some good manufacturing chemist, if careful investigation proves that product to be superior, because druggists are all too prone to dispense the inferior (because cheaper) article. The selection of the form of the drug to be used is also of importance, since that which produces the best results in one case will not in all, and this may best be determined by successive trials in each case. With reference to the comparative value of these agents, I have come to regard them in the order named: bromide of strontium first, sodium second, potassium third, and ammonium fourth and least valuable.

Then, the article selected, a great deal depends upon the manner of administration. If it be true, as in the light of our present knowledge we are led to suppose, that the beneficial effects of the bromide treatment arise from the inhibitory influence which these agents exert over the nerve cells themselves, thus "warding off the attacks," as Gowers says, "for a sufficient length of time for the morbid process to subside," then we may also suppose that the more constantly the patient is kept under their influence the more effective will this course be. Accordingly, I prefer to give these drugs in divided doses after each meal rather than in a single large daily dose. In case of nocturnal attacks, however, a fourth and larger dose may well be given on retiring.

In order to secure anything like permanent results the bromides must be continued for a long time, two or three years after the last attack in most cases, and it is not an easy matter to get patients to continue the medicine with the requisite regularity for so long a time. For this reason it is very desirable that it be prepared in as palatable, or even attractive form as possible. The aromatics or elixirs may be used for this purpose, but most successfully of all, some light wine. I prefer to give the wine in mixture with the bromide so as to limit the amount taken; and when given in this manner after each meal, it constitutes a thing which the patient will miss when forgotten; therefore it insures the greatest regularity. Of course, any form of alcoholic used thus regularly for such a time must be prescribed in selected cases only, since there is danger of creating a taste for them. However, the danger is not so great as would appear, because of the small amount of wine necessary and the absolute regularity of dose.

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*Read before the Minnesota Academy of Medicine, November 2, 1896.

The occurrence of acne in the course of the bromide treatment is no evidence of bromidism, and the medicine should not be discontinued on account of it. With careful attention to the organs of digestion and to proper elimination by the emunctories, it will often disappear entirely, while the bromides are still continued.

Such emphasis upon apparently small points as the foregoing may seem unnecessary in a paper of this kind, nevertheless, in practice, these details very often make all the difference between success and failure in the treatment of epilepsy.

The real influence of the bromides over cases of epilepsy has from time to time been called in question. Some two years ago this question was raised by one of the members of the staff in the neurological department of the St. Paul Free Dispensary, and we determined to put the matter to a fair test. Accordingly six cases were selected of varying degrees of intensity as well as frequency of attack, and who had been on the bromide treatment for some time. In all these the bromides were discontinued simultaneously, continuing, however, all the other remedies then in use in each case.

A placebo was then prepared containing other salts and made to taste and appear as nearly like the bromide mixture as possible, and each patient was given a bottle of it, with directions identical with the old remedy. All suggestion of change or experiment was carefully avoided in presence of the patients. Within ten days four of the six reported very emphatically that they were not doing as well, and careful inquiry revealed the fact that the frequency of attacks had increased from 50 to 100 per cent. in these four. The other two were of the type that had infrequent attacks, and there had been in this short time no perceptible effect on them from the change. On the whole, the effects of the change were so evident and so distressing to the patients that we had not the heart to continue the placebo, but put them back upon the bromide course, much to their relief. The skeptical member of the staff was satisfied with the experiment.

Aside from the use of the bromides, the treatment of epilepsy resolves itself into the treatment of the patient. I shall not attempt to go into detail in this part of the subject, but suffice it to say: attend to every detail of health so as to place the patient in the best possible physiological condition, not forgetting to search for and to remove, so far as possible, all sources of reflex irritation. An adherent prepuce, a diseased ovary, a bad stomach, an over-wrought, neurasthenic brain, or even a bad corn may be a sufficient cause of nervous irritation to culminate in the nerve storm which we know as the first epileptic attack, and failure to relieve these sources of irritation may result in failure of the course of treatment.

It has been my experience that almost every bad case of epilepsy has a good deal of disturbance of the alimentary tract, and especially of intestinal indigestion, so that measures directed to the relief of this condition become almost of necessity a routine practice. Among the most commonly useful agents for this purpose may be mentioned bismuth, naphthol, charcoal, irrigations; in short, intestinal antiseptics.

Careful attention to details of treatment will, I feel certain, insure such results as will greatly lessen the dread which many of us feel of our epileptics, and will somewhat modify the statistics upon the results of treatment as they now exist in literature.

As illustrating some of the points made above I have appended a brief statement of facts from a few cases selected from my record book. They are taken from a series of thirty-seven cases that have been under personal observation within the past four years. The selections are not made with regard to the results of treatment, but rather on account of the constant attendance of the patient through a long period, and the consequent complete and more valuable history:

Case 3. J. T. Male, age 38 years. For some time had had queer spells (petit mal) several times a week, and for two years attacks of the major type, occurring about four times in each year. This case has been under observation for seven years. Placed upon the bromide of potassium with intestinal antiseptics, the minor attacks became very infrequent, and for a period of four years he had not a single attack of the major type. He then became enamored of the School of Faith Cure, and discontinued the use of the bromides. Two or three months later he sent for me in great haste one morning, having had no less than five attacks of the major type in a single night. He came to his senses, and is again upon a bromide course, and is doing well.

Case 5. A. P. Widow, age 40 years, had been subject for several years to attacks characterized by muscular spasms and twitchings, with loss of the power of speech but not of consciousness. The aura in this case was distinct, always beginning in the left foot and passing upward. However, the localizing symptoms did not seem to be sufficient to warrant an operation, as the Jacksonian aspect of the case would suggest, so she was placed upon a simple aqueous solution of bromide of soda. The attacks became much less frequent, and for a year and a half ceased entirely. Patient discontinued treatment for a period of six months, contrary to advice, when the attacks returned for a short time. Treatment was resumed, and she has had but two attacks in the past year.

Case 9. C. B. Male, age 24 years. Had been subject to nocturnal attacks only for some three years, occurring from ten to fifteen times in each year. The constant use of bromide of sodium for three years reduced the attacks to three in each year.

Case 17. Mrs. M., age 35 years, had had attacks of both grand and petit mal for ten years. There were on the average from eight to ten of the former in each year, and the latter much more frequently. Put upon bromide of strontium in essence of pepsin, and this supplemented by tonics and general reconstructives, she has had but one attack in two and one-half years, and this one was apparently provoked by extreme exertion in the hot sun. She is still under treatment.

Case 20. A. M., married woman, age 46 years. Careful inquiry after symptoms of another disease elicited a distinct history of attacks of petit mal, occurring very frequently for several years. She described them as "an instant of blank existence," and the nature of the attacks had not been recognized. She had had no attacks of the major type. Bromide of strontium given constantly for one year caused complete cessation of the attacks, and now, after an interval of two and one-half years from the commencement of treatment, there has been no recurrence of them.

Case 25. M. M., a young girl of eighteen years, had had for over a year occasional "faint spells," which, owing to her own insistance that they "were nothing," and to my lack of thorough investigation were not recognized as epileptic, until one morning I was called hastily to find her in the post epileptic coma of her first major attack. Careful inquiry then revealed the fact that the former attacks had undoubtedly been epileptic in character from the first. She was put immediately upon bromide of strontium and carefully watched in all details of health, with the result that so far, two years since the commencement of the treatment, she has not had a single attack of either variety. The treatment is still continued.

Case 27. Mrs. F. Age 62 years, had for several months localized (Jacksonian) epilepsy, beginning in the face and involving the left arm and side of the neck, and occurring from two to five times a week. Owing to her age and general health operation was not deemed advisable, so she was put upon bromide of sodium in port wine, which entirely relieved her for nearly one year, when she discontinued the treatment and the attacks soon returned.

I will not weary my listeners with further relation of cases, but think the close observer will note the connection between each of those referred to and the leading points of treatment mentioned in the foregoing pages.

An article upon this subject would certainly be incomplete without reference to the epileptic colony as a plan of treatment. As it is practised in Bielefeld and in some other parts of Europe, and more recently in various parts of our own country, it has proved eminently successful. The association of a large number of epileptics under proper social restrictions, is a thing to be desired, and in these places has proved very satisfactory both to the patient and the community. The medical profession and the public charities of Minnesota should seriously consider some measures looking towards the development of such a colony in our State. Otherwise we shall run the risk in this instance of losing our reputation for always being in the fore front in matters pertaining to the general welfare.

582 Endicott Arcade.

THE RADICAL CURE OF HERNIA.*

By T. F. DeWitt, M. D.

St. Paul.

Mr. President and Members of the Academy:

The history of our subject may be divided into three periods: The *first* extends from the time of Celsus to the introduction of subcutaneous surgery in 1831. The *second* from 1831 until the inauguration of antiseptic surgery. The *third* from the introduction of antisepsis until the present time.

Celsus, Heliodorus, Paulus Egenita and other ancients operated for the cure of hernia on much the same principles that we operate today. They made an open wound, reduced the hernia, ligated the sac, usually castrated, and then either sewed up the wound, or allowed it to close by granulation. The mediæval surgeons employed the same methods and added several operations which are, however, only of historic interest.

Owing to the small percentage of cures and the frightful mortality of these preäntiseptic days, the operative treatment of this condition was gradually abandoned until, in the last century, it was seldom attempted.

In 1831 the cure of hernia by operation was again revived, owing to the introduction of subcutaneous surgery. Various injection methods were introduced, of which Heaton's is the most celebrated, and the subcutaneous operations, such as Gendy's, Wützer's, Wood's and Spanton's. The last two were not strictly subcutaneous, though practically such. The subcutaneous procedures did away with much of the danger, but did not increase the percentage of cures.

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* Read before the Minnesota Academy of Medicine, December 2, 1896.

The open method was revived with the discovery of the principles of antisepsis. Mr. Charles Steele, of Bristol, was the first to operate by the open method under antiseptic precautions. This was in 1873. He was followed by a large number of surgeons and the operation rapidly grew in favor. It was not many years, however, before it was observed that the large majority of the cases relapsed, and surgeons became discouraged or devised new methods, only to find them no better than the others; so it finally became the rule to advise operation only in cases that could not be made comfortable with a truss. The sentiment of the profession at this time was voiced by Wm. T. Bull, of New York, who, in 1890, in a paper entitled "Notes on Cases of Hernia Which Have Relapsed after Various Operations for Radical Cure," said: "I hold, after the knowledge of these failures, and in view of the fact that after the operations recurrence has been often long delayed, that it is wise to drop the term cure and to estimate the value of any given procedure by the relative proportion of relapses." He had operated upon one hundred and thirty-six cases by various methods. Of these 34.75 per cent. had relapsed within a year, and only four remained sound after four years.

At about this time two new operations attracted the attention of the profession—that of MacEwen and that of Bassini—and these procedures or modifications of them are the prevailing operations today.

In looking over the literature of this subject for the last five years, one is confused by the large number of operations that have been described. All that are of value, however, are founded upon a few fundamental principles, and differ only as to which of these principles the greatest importance is attached. These principles are:

(a) Absolute asepsis.

(b) Treatment of the sac in such a manner that no depression remains at its neck.

(c) Strengthening of the posterior wall of the inguinal canal.

MacEwen, attaching most importance to the treatment of the sac, separates it from the canal and from the abdominal side of the ring, and then passes a suture through it in such a manner that, when drawn upon, the sac is folded into a pad, which is then placed on the inner aspect of the ring, not only doing away with the peritoneal cul de sac that so often remains, but actually producing a convexity of the serous surface at this point. He then narrows the ring and canal by a single mattress suture of chromocized catgut. Many of the procedures advised today are but modifications of MacEwen's operation.

Bassini, while considering high ligation of the sac important, attached greater value to strengthening the abdominal wall. He called particular attention to the weakness of the posterior wall of the inguinal canal, and to the fact that the presence of the cord is an additional element of weakness. His efforts, therefore, are mainly directed to building up the strongest possible posterior inguinal wall, in order to do which he transplants the cord, as it is called.

The steps of his operation are briefly as follows: An incision is made parallel to and a little above Poupart's ligament, from the spine of the pubes to within two inches of the anterior superior spine. A director is passed into the canal and the external oblique is split up to and a little beyond the internal ring. The sac is isolated, opened, and the hernia reduced. The sac is now ligated as high as possible and removed. The cord is then raised and the edge of the internal oblique and transversalis is sewed to Poupart's ligament. The cord is then dropped and the external oblique closed over it.

Prominent among the modifications of this operation are Halsted's, Postempski's, Wölfler's and Dawbarn's. Halsted reduces the size of the cord by excising all but one or two of the veins. He then brings the cord out of a new ring made by incising the internal oblique and transversalis from the old ring in an outward direction. He then lifts the cord and closes the canal and old ring by uniting with sutures the external oblique, internal oblique and transversalis fascia above, with the transversalis fascia, Poupart's ligament and fibres of the external oblique below. The skin wound is then closed over the cord.

Postempski brings the cord out through the external oblique opposite the internal ring, and then displacing it upwards and inwards, sews it to the external oblique upon which it lies.

Wölfler slits the abdominal wall straight up from the internal ring, and through this split brings the cord, which is then placed upon the external oblique.

The ancients realized that the presence of the cord favored a relapse and therefore castrated. The knowledge of this fact probably suggested to my friend Dr. Dawbarn, of New York, his ingenious procedure, which consists in placing the testicle and cord in the loose cellular tissue behind the inguinal canal. He then entirely obliterates the canal and both rings. He takes the precaution to have a friend of the patient present that he may testify afterwards that the castration is only apparent. There are many other modifications of Bassini's operation, but the above are those most often employed. As Macready says, "If there is any difficulty in making choice of an operation it evidently arises not from a lack of operations."

It is the opinion of the writer of this paper that no one operation is equally applicable to all cases of rupture. In some cases, particularly in women and children, MacEwen's operation is indicated.

In others that of Bassini or Halsted is all that can be desired; while in the majority of cases a combination of various typical operations is most effective.

The writer proceeds as follows: An incision is made parallel with Poupart's ligament from a point about two inches to the inner side of the anterior superior spine of the ilium to the spine of the pubes, exposing the aponeurosis of the external oblique and the external ring. The external oblique is now incised from the external ring to a point at least an inch beyond the internal ring. The upper flap is now reflected until the conjoined tendon is fully exposed, and the lower flap until the shelving edge of Poupart's ligament is seen. The sac is now isolated, *invariably* opened, and the contents reduced. It is then pulled well down, freed from the margins of the ring, and if of medium size is treated after the manner of MacEwen. If too small to seem of value as a pad, it is ligated as high as possible with catgut and removed. If very large it is also removed on account of the danger of its sloughing. The cord is now raised, and the cut edges of the aponeurosis of the external oblique being retracted, the rectus, conjoined tendon and arched fibres of the internal oblique and transversalis and the transversalis fascia above, are united to the transversalis fascia and Poupart's ligament below, exactly as in Bassini's operation, excepting that kangaroo tendon is substituted for silk. The sutures should be passed in such a manner that they include an inch or so of the muscles above, but not more than one fourth of an inch of Poupart's ligament below. The last suture should be passed as near the cord as possible without constricting it. The edges of the divided external oblique are next overlapped sufficiently to cause moderate tension, and then united by interrupted sutures of tendon, except at the upper end through which passes the cord. This angle, it should be remembered, lies an inch or two above and to the outer side of the internal ring. Accordingly the cord, after emerging from the ring, takes an upward and outward course before passing between the cut fibres of the external oblique; it then turns again at an acute angle and runs in a direction downwards and inwards towards the scrotum. It is now placed upon the external oblique and the superficial fascia and skin united over it by two rows of continuous catgut stitches, that uniting the skin being subcuticular. The wound is now dressed with gauze and collodion and a firm spica bandage is applied. The patient is kept in bed three weeks and advised not to no any hard work for eight weeks more. The wearing of a truss is discouraged.

In regard to operations for femoral hernia it may be said that the operation described by Bassini is simple and effective. He removes the sac, sutures Poupart's ligament to the pectineal fascia, and then the falciform ligament to the pectineal fascia.

The danger that lies in the not uncommon practice of ligating the sac without first opening it, was well shown in two cases recently operated upon by the writer. In one case, after having apparently reduced the contents of the sac, it was opened, when a flattened appendix was detected, lying just within the neck, adherent to the sac wall. This could not be felt through the sac, even after its location was known. In another case, a scrotal hernia, it was supposed that the contents were reduced; but upon opening the sac previous to ligation, a long, narrow, delicate strip of omentum was found within, adherent to the bottom of the sac.

In regard to suture material the writer is convinced that any form of non-absorbable, buried suture, is frequently the source of late suppuration. This is seen more often in operations for hernia than in operative work elsewhere, probably because it is necessary to tie the sutures more tightly. Catgut is absorbed too quickly. It has been shown by Busse,* in experiments upon the lower animals, that ten weeks are required for tendinous union, and union of practically tendonous structures is what we desire here. Ballanee and Edmunds,† in their experiments upon the lower animals, in connection with their work on ligation of arteries, have demonstrated that kangaroo tendon remains unabsorbed for at least three months.

Theoretically, then, kangaroo tendon should be an ideal suture, and in a large number of operations performed by Marcy, Coley and others, it has proved to be all that can be desired in practice.

In a case operated on two years ago silk was used for the deep sutures, and caused no trouble for several weeks, then it caused suppuration and had to be removed. Halsted has had a number of such experiences. In another case catgut was used for the deep stitches. Three weeks after the operation one could feel that the previously united deep structures had separated. Since then tendon has been used exclusively and has been satisfactory.

In regard to the propriety of excising "all but one or two" of the veins of the cord, as is recommended by Halsted, it may be said that statistics show that this is unnecessary; and furthermore, it is not free from danger as regards the life of the testicle. A case of the writer, in which this procedure was followed, resulted in sloughing of the testicle, and he has been told of similar results occurring in the practice of others.

There is a great difference of opinion in the profession as to the indications for operative treatment of hernia. Before arriving at a decision of this question one must consider, first, what proportion the danger of operation bears to that of allowing the hernia to remain; second, which varieties are the most dangerous to life; and third, what the probabilities are of recurrence.

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*Cited by Coley.

†Coley.

The mortality of the operation in competent hands is apparently less than one per cent. MacCready estimates the mortality of hernia *per se* at five-tenths per cent. All agree that femoral hernias are the most dangerous, and inguinal in the female the least so.

In regard to the probability of recurrence we must admit that sufficient time has not elapsed since the perfection of the modern technique to speak positively; but, when we remember that the majority of relapses occur within the first year, we can say that the indications are that a very small proportion, perhaps even less than one per cent., properly operated upon, will recur. It is plain, then, that the field for operation has widened greatly within the past five years. We should operate, in the opinion of the writer, upon all cases of hernia occurring in subjects of sufficiently good physical condition, who are not aged, or very young—say under four years. We might except, also, persons of decidedly sedentary habits whose ruptures are at all times properly and comfortably retained. The writer has operated upon sixteen cases during the past three years. Of these, three are untraceable, but were sound when last heard from; one has relapsed, and twelve are still well.

The number operated upon is too small, and the period of time that has elapsed since the performance of the operations is too short to form any decided opinion from these cases, but one has only to refer to the statistics of Bassini and Broca in Europe, and to those of Halsted, Coley and others in this country, to be convinced of the great advance that has taken place in this branch of surgery.

In closing, let me state that I believe that success depends more upon the thoroughness and accuracy with which the technique is carried out, than upon any particular method being followed. The asepsis must be most rigid, since there is much necessary constriction of tissues, the greatest ally of sepsis. The peritoneal cul de sac must be thoroughly removed. The sutures must be of proper material, be accurately placed, and drawn firmly enough to hold the parts snugly together, but not so tightly as to cause unnecessary constriction of tissue. It is in the proper carrying out of these principles that success lies.

Hasse, for more than twenty years, has used injections of alcohol in the treatment of inoperable cancer, and he reports four cases of this kind as permanently cured. He uses the same method in cancer of the breast, and believes that cure can be effected by surrounding the breast with cicatrical tissue by means of alcohol injections. It is preferable, however, to extirpate the breast, and treat recurrences by the injections. In this manner he obtained radical cure in a case declared inoperable by Volkmann.—*La Semaine Medicale.*

INTRABRONCHIAL MEDICATION.*

By H. J. O'Brien, M. D.

St. Paul.

The subject of intrabronchial medication in diseases of the respiratory tract, while not new at all, having been practised in a crude sort of way some forty years ago, has interested me not a little of late. My interest in the subject was aroused by Dr. Muir, of New York, and by an article in the *Medical Record* of August 1 by Dr. Barton. In this article Dr. Barton goes into an elaborate description of the larynx, trachea and bronchi, together with their nerve supply. Among others he quotes Dr. Muir, and calls special attention to a syringe and endolaryngeal tube devised by the latter.

During the past summer I had the pleasure of meeting Dr. Muir, and he very kindly gave me the details of the treatment and demonstrated the method. Since then I have used this treatment in properly selected cases over one hundred times. I have become very much impressed with the benefits the patients derive therefrom, and have demonstrated the treatment to physicians here as circumstances would permit, and as many of you have met Dr. Muir lately, no doubt others beside Dr. Abbott and myself are using it with benefit ere this.

I report the following cases as examples of what may be done with this treatment:

Case I. Mr. E. D., age 22, acute tuberculosis, vomica of right apex, first intrabronchial injection given August 11. Patient slept that night on the right side for the first time in weeks, breathing easier, cough improved, but complained of much pain on the right side after injection. Menthol, guaiacol and iodine were administered to this patient daily for about three weeks with marked diminution in cough. Morphine that this patient had been taking was at times entirely withdrawn, and only occasionally one-quarter to one-half grain was given, whereas, before the intrabronchial treatment, the patient was taking one-quarter of a grain every two hours. The man was of course kept upon constitutional treatment but gained very slowly. I could note no effect of the treatment in this case save the amelioration of the cough.

Case II. Miss S., age 22, presented herself August 19 and complained of a dry hacking cough that had troubled her for the past three months. Physical examination of the chest was negative. She was given an intrabronchial treatment of menthol and guaiacol on August 19, and six injections afterwards, when she reported herself entirely relieved.

Case III. Mrs. D., age 25, was sent to me for treatment August 21. She complained of wheezing in her chest and throat, a troublesome cough with at times only a little expectoration and shortness of breath. Physical examination demonstrated small mucous, sibilant and sonorous râles over the chest, but inconstant. She was given an intrabronchial treatment of menthol. guaiacol and iodine, and reported the next day as very much relieved. The treatment was continued until the middle of September, when she reported herself free from cough, no more wheezing in her chest or throat, no shortness of breath.

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*Read before the Ramsey County Medical Society, September 28, 1896.

Case IV. Mr. G., age 35, came to the office September 22 complaining of asthma. Physical examination demonstrated slight emphysema. He had not been able to sleep at night. Following the first intrabronchial treatment he slept all night for the first time, as he said, in three weeks. He was given daily treatment for a few days with marked relief both as to cough and breathing.

I could enumerate many other cases treated by this method with relief, even in the short time that I have used it, but I refrain because I believe that a paper read before an intelligent body of men should be, first, brief and to the point; second, the good or bad points of the subject developed in discussion of the members as a whole.

It seems to me the treatment of many diseases of the respiratory tract by means of Dr. Muir's syringe is not only scientific and theoretically sound, but is of great practical benefit. I have used the treatment in tuberculosis, acute and chronic bronchitis, bronchiectasis, asthma, etc., and my experience is in entire accord with the claims of other physicians to whose reports I have had access. Some of the claims advanced in favor of this treatment, and which I have found to be true from experience, are that it allays cough, diminishes expectoration, and quickly cures some diseases of the respiratory tract. In tuberculosis it allays the cough, thereby giving the patient much comfort without the use of opiates.

It is also claimed to disinfect the sputum in this disease, but my experience has been too limited to be of much value in this connection. In acute and chronic bronchitis, in asthma and in the "troublesome cough" that may be of laryngeal or tracheal origin, or a combination of the two, it is almost a specific. The treatment should be given daily at first, and the number of treatments gradually diminished as the individual case may indicate.

Solutions, preferably dissolved or suspended in benzoinol, of iodine, menthol, guaiacol, ichthyol, terebene, etc., may be administered in from one-half to one dram doses, but this dose may be repeated two or three times at one sitting, as deemed advisable. The instrument used is a syringe attached to a hollow copper tube about twelve inches long, that may be bent by the hand to any curve desired. The piston of the syringe is graduated so that a few drops or a much larger quantity may be administered at will. The technique (extremely simple) is: the patient, sitting opposite the physician, is instructed to open the mouth and protrude the tongue, holding it there between the index finger and thumb of the right hand. A good light is thrown into the throat by means of a head mirror. Taking a laryngeal mirror in the left hand, the physician puts this against the soft palate and brings the epiglottis into view, the endolaryngeal tube is then inserted into the larynx and the piston of the syringe pressed upon. The whole procedure takes a very short time, and may be done by any physician. It may not be amiss to add that the *landmark* is the *epiglottis*, and the more quickly the tube is inserted between the vocal cords (which should be during inspiration) the less discomfort will the patient experience.

In closing, I want to express my deep obligations to Dr. Muir for his demonstration and advice in this method of treatment.

THE TREATMENT OF CLUB FOOT.*

By James E. Moore, M. D.

Minneapolis.

It is not with the expectation of offering anything new that I bring this subject before you, but to emphasize the practical points that are well established, and to point out the causes of failure in treating these cases.

That there are failures, many here can testify.

In the hands of one who has had ample experience, the prognosis is always good; every case can be cured by one form of treatment or another.

Since my paper is a brief one, I shall base my remarks upon talapes equino-varus, because it is by far the most common variety, and the principles are alike in them all.

In the early days of orthopœdy the only way club foot was treated was by continuous leverage, and while there were many cures there were also many failures, because many cases cannot be cured in this way. More recently, or since the dawn of orthopœdic surgery, quicker and better methods are employed in the majority of cases.

Stromeyer first taught us that much time can be saved in many cases, and that some otherwise incurable cases can be cured by the simple operations called tenotomy.

Since the establishment of antiseptic surgery we have added to our resources the open incision, or Phelps' operation, and the various bone operations, each of which has a legitimate place in surgery.

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* Read before the Minnesota Valley Medical Society, December 6, 1896.

The time to begin the treatment of club foot is as early as possible after birth, for at this time the majority of cases will yield to the simplest of measures, and the child can begin to walk normally at the usual age. Unfortunately, the majority of cases are allowed to go untreated until the child is old enough to walk, or even later. The majority of cases coming to the orthopœdic surgeon for treatment are cases that have been unsuccessfully treated elsewhere. Those who cure these cases without fail have no secret methods, but have acquired the requisite skill from experience. Their experience teaches them the proper sequence in which to apply the various methods of overcoming the deformity and the best measures for preventing a relapse.

When a case is brought for treatment, the foot should be grasped by the hand of the surgeon and an effort made to place it in the normal position. If this can be accomplished with very slight force no operation is necessary, because a cure can be accomplished by simply holding the foot in the proper position by proper mechanical appliances.

If, as is usually the case, the tibialis anticus offers decided resistance it should be cut subcutaneously. The plantar fascia is very commonly contracted in these cases, so that when an effort is made to straighten out the foot it can be felt as a dense, unyielding band in the sole of the foot. It should be cut by passing a fascia knife underneath it and cutting outward.

The tendo-Achillis is always contracted, but should not be cut until the varus is thoroughly overcome, because it serves to fix the heel so that the foot can be unfolded. If this tendon is cut at this time any force applied to the bottom of the foot to straighten it will only flex the ankle. This cutting of the tendo-Achillis at the first setting out is one of the most common mistakes. It does enable one to overcome much of the deformity, and everyone is pleased at the improved appearance of the foot; but, unfortunately, it is not the most serious part of the deformity that is overcome in this way, and disappointment follows. I find that most of the cases coming to me that have been unsuccessfully treated elsewhere have had the tendo-Achillis cut, and sometimes the tibialis anticus tendon, and have then had some variety of club foot shoe applied. This treatment will usually be followed by failure; in fact, it is only the very mildest form of deformity that offers any chance of recovery under this treatment. The club foot shoe does not cure club foot, and, if used at all, it should be only to prevent a relapse after the deformity has been completely overcome.

After cutting the tibialis anticus tendon, and, if necessary, the plantar fascia, the next step is to apply force enough to overcome the deformity. A number of machines have been invented for this purpose, but they are only a convenience and not a necessity. The surgeon's hand is better than any machine, because it is powerful for good and does no harm. The patient being still under chloroform, the surgeon grasps the little foot, and gradually forces it into an over-corrected position. It is not enough to simply straighten the foot, for unless it is turned in the opposite direction it will surely relapse. Before applying a retentive appliance, the foot must be repeatedly forced into the over-corrected position, until it requires but little force to get it there.

Another mistake frequently made is in forcing the foot into place just as the mechanical appliance is being adjusted; this will not only lead to disappointment, but is liable to do serious harm. The patient cannot wear an appliance adjusted in this manner with either comfort or safety. If the deformity cannot be so overcome at one sitting as to be easily held by an appliance, the foot should be held in the best possible position compatible with comfort and safety, and the balance ef the deformity overcome at a subsequent sitting. It is astonishing what a great amount of pressure a little tender foot will bear with safety *when the pressure is applied for a short time only*. Dr. Phelps' machine, which he uses after the open incision, is capable of making several hundred pounds pressure.

On the other hand, continuous, severe pressure cannot be borne. Chafing, sloughing and even gangrene may follow pressure injudiciously applied. The writer knows of one case in which the child lost its life from gangrene of both feet from plaster of Paris improperly applied.

After the deformity has been overcome it must be held in the new position until it does not return to the deformed position as soon as the apparatus is removed. This is usually from three to six weeks. When this is accomplished the tendo-Achillis should be cut and the appliance readjusted for about two weeks, when the child will be ready for a walking appliance.

A certain number of cases, particularly in older children, cannot be cured in the simple manner outlined above, but require more heroic treatment. When the resistance seems to be in the soft parts rather than in the bones the open incision, known as Phelps' operation, should be resorted to. This operation is best performed as follows:

After making the part thoroughly aseptic, and applying an Esmarch bandage, an incision is made, beginning just in front of the tip of the internal malleolus, and extending well across the sole of the foot. The cut must be made deep enough to divide all resisting tissues, regardless of anatomical structures. The deep fascia and ligaments will be found to offer great resistance. The deformity is now forcibly overcome by the hands, a piece of rubber tissue applied over the wound, and a surgical dressing applied. Over this is applied a plaster of Paris cast, and the foot held in an over-corrected position while it sets. The Esmarch bandage is not to be removed until the plaster is set. This dressing allows the wound to fill with a blood clot which acts as a frame-work for the new tissue. The dressing should be allowed to remain for a month, or even longer, if all goes well, but it must, of course, be removed earlier should it become soiled or a temperature develop. Dr. Phelps advises that the tendo-Achillis be cut at the same sitting with this operation. This is doubtless good advice where one has a powerful machine, such as he uses to force the foot into position after the operation, but where the operator has only his hands to depend upon, he will do better to delay the cutting of this tendon until later.

In the severest form of club foot, such as is found in children several years old, where the bones are quite hard, it will be sometimes found necessary to remove some bone in order to secure a satisfactory result. These cases do not all require such heroic treatment, and the severer operations should not be performed until milder measures have failed. These cases will often yield to skilful conservative measures in an astonishing manner. Even after the old method of continuous leverage, many of these cases were cured; and by the modern method of tenotomy and repeated forcible correction, a large majority of them can be cured. However, when these measures fail, or when relapse occurs after good treatment, the bone operation is indicated. The simplest, and, on the whole, most satisfactory, bone operation, is tarsectomy, or the removal of a wedge-shaped piece from the outer side of the tarsus. The operation is performed as follows:

The part having been made aseptic, an incision is made along the outer side of the foot, and the soft parts pushed aside until the bones are exposed, when, either with an osteotome or a bone-cutting forceps, a cuneiform piece is removed from the convexity of the tarsus, regardless of the anatomical structures. The size of the piece should be sufficient to allow the deformity to be overcome at once. The wound is now closed with catgut and a surgical dressing applied, over which a plaster of Paris cast is applied. The foot is held in the corrected position while the plaster hardens. This dressing is allowed to remain for a month, unless it becomes soiled or a temperature develops. In this operation the tendo-Achillis should be cut at the same sitting.

After having overcome the deformity the next indication is to keep the foot in the proper position. This can be most conveniently done by plaster of Paris. With good plaster bandages, a dressing can be applied quickly and neatly, and one can be assured that the apparatus fits properly, because it is moulded to the foot while it is soft, and hardens while it is held in the over-corrected position. At the first dressing the plaster is applied over the surgical dressings, but later one skilled in its use will be better satisfied to apply the plaster directly to the skin after it has been anointed with vaseline. Each bandage should be left on for about one week, when it is removed and a new one applied, farther correcting the deformity, when this was not completed at the first sitting. This dressing can be worn to advantage for some weeks after the child begins to walk.

Other materials have been suggested for this purpose, but none compare with plaster, which is efficient, cheap and always at hand. Any objections to it are based upon its improper use. If the operator will always bear in mind that he must overcome the deformity before applying the plaster, he will have no trouble. When this practical point is neglected and heavy pressure is made upon the plaster while it is setting trouble is sure to follow; but this is no fault of the plaster, but of the operator.

Some variety of Scarpa's shoe is very commonly used at some stage of the treatment of club foot; but, upon the whole, is not to be recommended. It answers a very good purpose when applied as a walking shoe after the deformity has been completely overcome, the sole object being to prevent a relapse; but if applied before the deformity is overcome, expecting it to aid in overcoming it, the result is sure to be disappointment. In other words, no club foot shoe should be applied until after the deformity has been completely overcome. It must be remembered that "half cures are no cures," and that the surgeon who partially overcomes the deformity and then applies a club-foot shoe, expecting it to complete the cure, is sure to fail.

The key to success in treating club foot is to over-correct the deformity, and then, and not till then, apply an apparatus that will prevent a relapse. There is a persistent tendency to relapse in these cases that must be guarded against, no matter what the treatment has been. Many relapses are reported after Phelps' operation, because the operator has failed to guard against a relapse by a mechanical appliance.

The appliance that has afforded the writer the greatest satisfaction consists of two steel uprights passing along the sides of the leg, with joints which allow flexion of the ankle, but no extension. A steel band around the leg, just below the knee, and a steel sole. The steel sole is made a little larger than the shoe sole, and has a piece bent up opposite the ball of the great toe, to prevent a turning in of the foot. To this sole is also attached a very high steel counter. If it is not unusually high the little one will manage to get his heel above it and slip the brace off. This appliance is to be worn outside of an ordinary baby's shoe, and is fastened by a strap and buckle just below the knee, and by straps passing over the instep in such a manner as to hold the sole of the foot firmly down upon the steel sole. The outward side of the leather shoe should be slightly elevated by an extra layer of sole leather, so that the bottom of the foot is held slightly everted.

This appliance must be worn night and day for a number of months, or until all tendency to relapse has disappeared. After the cure seems complete, it is well to have the child wear the brace during the day for some time.

A child that has been cured of club foot will walk pigeon-toed for some time, but it is safe to assure the parents that as the child grows older this will be gradually overcome, because this is the rule. In one of my cases the pigeon-toe was so persistent, owing to a twisting of the tibia, that I performed an osteotomy upon the tibia and set the foot at a proper angle, with a very satisfactory result. It is well to have the outer side of the front part of the sole of the shoe slightly elevated until this toeing in is overcome.

After the patient begins to walk properly upon the bottom of his feet the atrophied legs will begin to develop, and to assume their natural proportions.

In this day of heroic surgery it is well to guard these little patients against the attacks of the over zealous surgeon. While it is true that, in the past, orthopædists have been over conservative and slow in their treatment of this grave deformity, this is no excuse for going to the other extreme and performing unnecessary operations now. It is very bad surgery to perform bone operations upon children before the bones have hardened.

Phelps' very valuable operation is being abused at the present time, because the class of operators who always fail by more conservative methods, for want of proper attention to detail and lack of patience, can get some good results from this method. A surgeon has no moral right to expose these patients to even the slight dangers of incision when it is unnecessary.

The story of recent outbreaks of typhoid fever on the Merrimac river, an instructive tale, is thus given in the report of the Massachusetts State Board of Health:

"The Merrimac is a large and rapidly-flowing river, 150 miles long, navigable for 15 or 20 miles from its mouth. An outbreak in the city of Lowell was traced to an infection in a stream three miles above the 'intake' of the water company. This was followed in three weeks by a rapid increase of typhoid in Lowell, and in about six weeks by an alarming number of cases in Lawrence, a town situated lower down the river, whose water is drawn from the Merrimac nine miles below the point where the Lowell sewage enters the river. People at first denied that the ejecta of a few persons could affect a large and swift river like the Merrimac. The dilution which the ejecta had undergone was held to demonstrate the absurdity of such a view. But in December, 1892, there was again a marked increase of typhoid in Lowell, and it was predicted that Lawrence would shortly suffer. And so it did, but in this case, in addition to the outbreak at Lawrence, an uncontrollable epidemic arose at Newburyport, lying another twenty miles down the river at the mouth of the Merrimac, and it was then discovered that the water company had for some time been drawing water from the river which was not its usual source of supply."

In a paper in the *Occidental Medical Times*, by MacEwen, a very important point urged against the safety of operating upon abscesses of the brain, was that they occurred in regions which showed few localizing symptoms of the presence of lesions, and therefore it was difficult to diagnose the precise part of the brain in which the abscess was situated. Abscesses are slow in showing localizing manifestations, and therefore we often have lesions in the temporo-sphenoidal lobe without definite symptoms. In the cerebellar fossa, also, acute lesions may occur with very few localizing symptoms. There is, therefore, very great difficulty in ascertaining the precise location.

Hayden's treatment of buboes is thus described in the *American Journal of the Medical Sciences:*

This method consists in making a small puncture of the skin at the most fluctuating point of the bubo; thorough evacuation of the pus; irrigation of the cavity with peroxide of hydrogen followed by bichloride solution 1:1000; removal of all fluid by compression, and distention of the cavity with warm vaseline holding in suspension 10 per cent. iodoform, and application of a cold bichloride dressing to favor congealment. Five patients were cured by one injection, the average time of treatment being thirteen and one half days.

A fresh warning comes from the Iowa State Board of Health, in a sporadic case of scarlet fever reported from the city of Rock Rapids. The mother of the patient had received, a year before, a letter from her sister, whom she had intended to visit during the holidays of 1894, warning her not to come, as the writer's children were then sick with scarlet fever. One day in last December, the mother was looking over some old letters, and the children were around her. When this letter was reached the little girl exclaimed, "There is Auntie's letter," and proceeded to open it out and held it some little time. Three days later the infection did its work.—*Modern Medical Science.*

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A LOSS TO THE STATE.

The failure of the Governor to reappoint Dr. C. N. Hewitt, of Red Wing, to the State Board of Health, has called forth a loud and indignant protest from the medical profession of the whole State, a protest to which has been joined the voice of those members of the laity who have been in a position to know of the excellence of Dr. Hewitt's work for the maintenance of the public health, and the unlikelihood that it will be possible to find another man for the position who will be as faithful, as industrious and as successful in the work as he.

Twenty-five years ago when Dr. Hewitt's connection began with the public health service of the State, the science of preventive medicine as applied to communities was in its infancy. Except in the case of small pox there was practically no such thing as quarantine against contagious disease, outside of that maintained at ports of entry against vessels from places where yellow fever or cholera existed. In Minnesota the attempts to control outbreaks of epidemic disease were rarely made and feebly executed. The extent of territory to be covered was so vast and in many parts so thinly settled as to discourage the thought of providing it with an efficient health service. Yet this task, hopeless as it looked, is the very one which Dr. Hewitt undertook, and he carried it through so successfully that today Minnesota has a force of health officers so thoroughly organized and so well managed that there is not a state in the Union better protected against the invasion and spread of epidemic disease.

The work of a board of health is such that it must necessarily be left for the most part in the hands of a single man, and Dr. Hewitt, as the Secretary of the Minnesota Board, has been its executive officer, the other members acting as advisors and sanctioning the general plans under which the work was carried out. Much sneering criticism has been made that the Board was a one man power, the Secretary being virtually the whole Board, while the remaining members were little better than ciphers. A little reflection would show that a board of health that attempted to manage the hygiene of the State as a board would be in much the same position as an army where a council of war had to be held each time that the word forward was given. When an epidemic of disease breaks out in the State action must be taken at once, and it would be as absurd for the executive officer to consult the other members of the Board on such an occasion as for the chief of a fire department to await the deliberations of the board of fire commissioners before dealing with a conflagration.

One of Dr. Hewitt's chief contributions to the science of preventive medicine is the vaccine station at Red Wing, where there is produced a virus that is unequaled for certainty of action and freedom from contamination. Few medical men have any idea of the labor and expense involved in obtaining the best quality of vaccine virus, and there is no commodity in use where prime quality is more absolutely necessary, since the consequences of using either an inefficient, or worse yet, an impure vaccine virus may be of deadly seriousness. The station at Red Wing has been of the greatest benefit to the State, not only because it has furnished to health officers vaccine virus without expense, but because its close neighborhood has made it possible at the very beginning of a threatened outbreak of small pox to make those wholesale preventive inoculations which are of such vital importance to check the spread of the disease. If Dr. Hewitt, during his long term of service as Secretary of the State Board of Health, had done nothing more than to establish the Red Wing Vaccine Station, he would be entitled to the gratitude of the whole State. And his reward has been to be summarily dropped without the shadow of an explanation and no excuse except that of political expediency. The fact is that he has, by his own exertions, made the office so important that it now commands a salary sufficient to arouse the cupidity of contestants and efforts to displace him, so that it is, in a measure, the result of his own exertions that he is thrust aside

One of the deplorable effects of an act of gross injustice like the overthrow of Dr. Hewitt is its discouragement upon others who hold positions like his subject to the will of some appointing power, and who must feel little inclined to put forth their best endeavors when they see another man rewarded for long continued and faithful service by a summary deposition, not because he has not been, and is not still, the right man for the place, but because some personal pique or preference is to be gratified. The service of the state goes for naught; the skillful administration of office that can come only from experience goes for naught; justice, even common decency, goes for naught. In all departments of public life this blind and fatuous policy is pursued at an expense which must, some day, bring forth a bitter reckoning.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated Meeting, November 4, 1896, at the West Hotel, Minneapolis; The President, Dr. W. A. Jones, in the Chair.

Dr. C. L. Greene, of St. Paul, made a report upon the character, details and successful application of Widal's serum test in typhoid fever.

See Vol. XVI, page 439.

Dr. J. Clark Stewart, of Minneapolis, presented a report of a case of hydrops of the gall bladder, due to obstruction of the cystic duct by a distension sac of the lower end of the gall bladder, showing also an unusual diverticulum of the duodenum. He exhibited a greatly enlarged gall bladder, removed post mortem from a woman aged 81, the patient of Dr. O. S. Chapman, by whose kindness he was enabled to present it to the Society. Dr. Chapman had made a diagnosis of gall stones in this case some seven years ago, but the case had passed out of his hands and was treated by various men under various diagnoses until her death from exhaustion.

The gall bladder was greatly enlarged, measuring about seven inches in length by an inch and one-half in diameter, and was tensely distended by a brownish fluid and numerous gall stones. At its lower extremity was a distension pouch, which, by pressure, completely closed the cystic duct and also the hepatic ducts, which were greatly distended above this point. The common bile duct was also distended to a diameter of one-half inch, and filled with a reddish material which looked like broken down gall stones. The outlet of the common bile duct was freely open, and this reddish material could be squeezed out into the duodenum, so the dilatation of the common duct must be ascribed to earlier obstruction, probably due to a stone, the broken down débris of which still remained in the duct.

In the duodenum, about three inches below the entrance of the gall duct, was a diverticulum arising from the convex aspect of the duodenum, measuring one and one-half inches long and having the full diameter of the gut. This was unlike anything he had seen before, and might, perhaps, be due to senile change weakening the gut wall and allowing a sort of hernial protrusion of part only of the intestinal coats. He had as yet made no microscopical examination to determine this, but if all the coats were involved in this diverticulum, he thought the specimen must be a very rare one.

Dr. J. H. Dunn, of Minneapolis, exhibited a pair of ovarian tumors recently removed by operation. The patient was married, and 52 years of age. She had noticed, early in July, an abdominal enlargement and had supposed she was pregnant, although long past the menopause. Three weeks ago she had applied to Dr. Randall, of Graceville, for treatment, and by him was referred to Dr. Dunn. Upon examination, the position of the tumors dictated a diagnosis of ovarian growths. The patient then had a temperature of 101° to 102° F., and the disease was believed to be malignant. An exploratory incision was made, and revealed the two tumors which were readily removable, being free of adhesions, excepting a slight attachment of the larger to a loop of the intestine. The two growths weighed seven pounds. They were perhaps sarcomatous, but microscopic examination of them had not yet been completed. They contained several cysts.

Some fluid was found in the peritoneal cavity, and the omentum was the seat of numerous small shotty masses.

He presented another specimen consisting of a parovarian cyst associated with a fibroma of the ovary. The patient was unmarried, and 42 years of age. The growth was believed, prior to the operation, to be either an ovarian or a parovarian cyst. A hard, fixed mass was presented in the posterior cul de sac. It was successfully removed.

Dr. F. A. Dunsmoor, of Minneapolis, showed a unique specimen in the way of a tumor, the microscopical character of which had not yet been determined, but which had been removed from the abdominal cavity. The patient, Mrs. A., æt. 43; has had four children, the youngest eight years ago. She first noticed that the abdomen was enlarged in 1893. It has rapidly increased in size since that time. Menstruation has been normal. No subjective symptoms existed excepting headache, backache and leucorrhœa. A laceration of the cervix and the perineum exists. Laparotomy was performed. It was apparently a fibroma with a small cyst upon one side. Examination, prior to the operation, and the exploratory incision at the time of the operation, showed the growth to be freely movable from the pelvis to the ribs. It had no pedicle and was merely attached to a shred-like portion of the margin of the omentum. The patient's recovery was uninterrupted.

Dr. W. A. Jones, the President elect, read his inaugural address, entitled

NERVOUS STABILITY CONSIDERED FROM THE STANDPOINT OF EDUCATION AND TRAINING.

See Vol. XVI, page 443.

Dr. J. Warren Little, of Minneapolis, presented his thesis entitled

THE THYROID TREATMENT OF MYXŒDEMA, GOITRE AND CRETINISM.

See Vol. XVI, page 453.

Dr. J. W. Bell, of Minneapolis, who opened the discussion, said that the Academy was indebted to Dr. Little for an interesting paper upon this obscure subject. He had himself had small experience with the thyroid feeding. He had used the extract in two cases of exophthalmic goitre, but in neither for a sufficiently long time to obtain reliable results. The rational treatment of these diseases is closely linked with the physiological conditions of the organ primarily diseased. It is evident that the thyroid, together with the other ductless glands, supplies the body with some product or products of nutrient value. The precise nature of these products is unknown. The treatment of myxœdema by thyroid extract had certainly been successful. It had proved useful also in cases of cretinism. Recent reports, published in the *British Medical Journal*, indicated that some remarkable results had been obtained. So far as its use had gone, it was certainly encouraging, but he thought that other forms of treatment should not be neglected. He believed these cases to be amenable to treatment, and that the study of physiological conditions would make them more so. Fewer cases in the future would come under the surgeon's knife. In no instance should a case be turned over to the surgeon without having undergone careful medical and hygienic treatment, and only then, when pressure symptoms or systemic intoxication threaten serious consequences to the sufferer. In the cases of exophthalmic goitre referred to, treatment with the thyroid extract had been continued for some time; in one patient for two or three months. No apparent diminution in the heart action had been noticed. In this form of disease the treatment was a more doubtful matter.

Dr. A. W. Abbott, of Minneapolis, called the attention of the Academy to the fact that in women exophthalmic goitre is frequently associated with pelvic disease, of which chronic ovaritis is the type; a coincidence which he considered remarkable, and which was especially to be noted in young subjects of nervous temperament.

Dr. Thayer, of Corry, Pa., who was present as a guest of the Academy, said that his experience with the thyroid treatment was encouraging.

Dr. C. L. Greene, of St. Paul, asked Dr. Little whether he had seen any cases of tuberculosis in which the thyroid treatment had been given.

Dr. Little said that he had not.

Dr. Greene referred to a young subject, suffering with advanced pulmonary tuberculosis, associated with cervical adenitis, to whom the surgeon in charge had administered three grains of dessiccated thyroid, with resulting collapse.

Dr. Wm. Davis, of St. Paul, said that while the paper was confined to the treatment of thyroid disease, he should like to refer to its causation. Twelve years ago the late Dr. D. W. Hand had reported an epidemic of acute enlargement of the thyroid occurring in an institution under his care. Both males and females were affected; the disease ran its course in from six to twelve weeks; in most cases the enlargement disappeared; in a very few it persisted. At that time it was not the fashion to hunt for microbes, but the history of the epidemic suggests its probably infective origin. A recent change in the brand of flour used at the institution was then believed to be responsible for the attack.

Dr. W. A. Hall, of Minneapolis, said that he had seen no cases of exophthalmic goitre under thyroid treatment, but he thought that the general experience of the method was unsatisfactory. One clinical fact had not been mentioned, viz: that two patients had become, under its use, violently insane, and had died in hospital.

Dr. J. L. Rothrock, of St. Paul, said that he had had the privilege of listening to an address by Dr. Edwin Klebs upon his experience of thyroid disease in the mountains of Southern Europe. He had held that the water supply was the means of infection; both men and cattle, supplied from certain water courses, being attacked. Studying the altitudes and temperatures at which such infection occurred, the germs had been found active at the line of melting snow upon the mountains. It was thought that the germs were nomadic, since the disease had been known to disappear from and reappear in certain localities.

Dr. H. A. Tomlinson, of St. Peter, said that a proper understanding of these diseases was obscured by ignorance of the pathological conditions and morphological changes which are incident to them. He had seen quite a little exophthalmic goitre among the insane and in neurotics, and was accustomed to look upon it simply as a local manifestation of a general nutritive defect. Two types were generally recognized: the one in which a hard tumor occurred, susceptible of enormous enlargement and causing mechanical pressure, and the other an angioma associated with protruding eyeballs and rapid heart action. Of the latter type, he instanced a case of insanity in a young girl, which was associated with petit mal, and was accompanied by occasional attacks of exophthalmic goitre. Another case occurred at puberty. At first the goitrous enlargement was unnoticed, but the difficulty with the eye first suggested itself in certain errors of refraction. Later the protrusion of the eyeballs increased, and the disease was associated with mental disturbance. In no case was the disease an essentially local disorder; always it was associated with general changes. Anæmia and other nutritive errors, pelvic disease and abnormalities of menstruation had been usually observed.

Dr. R. O. Beard, of Minneapolis, referred to the statement of the essayist, that a physiological contradiction existed in the vascular conditions of thyroid disease, wherein a vaso constrictor paralysis was said to be associated with increased activity of the accelerator mechanism governing the heart. The contradiction was merely apparent, he said, and not real, for the statement involved a physiological error. The dilatation of the arterioles, which was so marked a feature of some phases of thyroid disease, was due not to vasal paralysis, but to an over action of the vaso-dilator mechanism supplying the organ, and this went hand in hand with the hyperactivity of the cardio-accelerator centres. The excessive blood supply consequent upon this habitual vaso-dilatation was the initial factor in the production of that overgrowth of interstitial tissue which marked the disease in its later stages: a hyperplasia of the connective tissues which always resulted from continued vascular dilatation.

Dr. J. W. Bell called attention to researches which proved the presence of peculiar chemical substances in the thyroid gland under conditions of disease, and their coincidence with the absence of iodine in the drinking-waters of the locality in which the patients resided. As a further coincidence he alluded to the curative value of iodine in these disorders.

Dr. W. A. Jones, of Minneapolis, said that the term myxœdema was too loosely employed. True myxœdema was rare; he believed that but very few cases had been seen. He considered the thyroid treatment still theoretical. He knew of no case of exophthalmic goitre benefited by it. He had seen therapeutic measures successful which were addressed to the vaso-motor disturbances which constituted so marked a feature of the disease. The occurrence of hemorrhage of the stomach in the course of exophthalmic goitre was indicative of the vaso-dilatation which had been referred to.

Dr. H. M. Bracken, of Minneapolis, said that he had had some experience in the thyroid treatment of exophthalmic goitre, and it had shown no good results. He called attention to Dr. Starr's recent paper upon the subject of thyroid disease, in which was noted the absurdity of thyroid feeding in both of two maladies, or two phases of a disease, which were physiologically opposite.

Dr. J. Warren Little, in closing the discussion, said that he had not advocated the thyroid treatment of exophthalmic goitre; he should expect the patient to be made worse by its exhibition. If tachycardia is existent, and such a condition is produced by the thyroid extract, it is manifestly inapplicable. He thanked Dr. Beard for his suggestion regarding the vascular conditions of the disease, and thought it was presumably correct. He had never seen a case of exophthalmic goitre recover, although he had noted improvement. He thought that myxœdema was not so uncommon, especially as a result of operation upon the thyroid, and, in its event, he considered the thyroid treatment applicable.

Dr. A. W. Dunning, of St. Paul, read his thesis, entitled

THE TREATMENT OF IDIOPATHIC EPILEPSY.

See page 21.

On account of the lateness of the hour the discussion upon it was postponed.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated Meeting, December 2, 1896, at the Hotel Ryan, St. Paul; The President, Dr. W. A. Jones, in the Chair.

Dr. J. T. Rogers presented a specimen and reported upon the following case:

Mrs. S., white, æt. 18, married one year. Had one miscarriage six months ago, at which time the cervix was badly lacerated, the tear extending well into the body of the uterus. After miscarriage menstruation was regular for four months. She then skipped two weeks and began to flow, continuing to do so until operation. She was first seen on October 15. Bimanual examination showed the uterus to be slightly enlarged, but freely movable; right tube and ovary normal. A mass was found on the left side as large as an English walnut, freely movable but very painful on pressure. Left ovary normal. The patient was somewhat anæmic, and complained of a great deal of pain in the left ovarian region. There was considerable discharge from the uterus, dark, dirty brown in color, and a few blood clots in the vagina. She was asked to return again in two days, at which time she was again examined. No material change had taken place, excepting that the pain in the left ovarian region had increased. Diagnosis was made of extrauterine pregnancy. Immediate operation was advised. In less than an hour after my last examination I was called to the patient's house and found her in collapse, with no radial pulse; pupil dilated; she had been vomiting; temperature was subnormal; she was in a cold, clammy sweat, and had two involuntary evacuations of the bowels. She was very anæmic. Upon regaining consciousness she said that while on her way home from my office she was suddenly seized with sharp and severe pain in the left side; felt nauseated and very dizzy. Immediately upon reaching home she fainted. Bimanual examination was negative. The following morning, after a very restless night, her temperature was 99° F., pulse 120; abdomen distended and tympanitic; respiration shallow, rapid and painful; nothing new was discovered by bimanual examination. She was sent to the hospital and watched for five days, during which time her temperature and pulse remained normal; she complained of no pain; her appetite was good, bowels regular; she slept well and felt perfectly well. On the sixth day her temperature rose to 101° F., and she complained of some pain on the left side. On the seventh day she was sent to the operating room, the uterus thoroughly curetted, the cervix repaired, and laparotomy performed. Upon opening the cavity a large amount of dark fluid blood escaped. The cavity contained about three quarts, but no clots. The right ovary and tube were normal, the uterus slightly enlarged, the left ovary normal. A ruptured gestation sac was found in left tube one-fourth of an inch from the fundus of the uterus. There were no adhesions. The cavity was flushed with normal warm saline solution and closed without drainage. Recovery was uninterrupted. She was discharged from the hospital ten days after the operation.

Dr. J. W. LITTLE, of Minneapolis, inquired whether it was an unusual thing for blood to remain fluid in the peritoneal cavity.

Dr. A. W. ABBOTT, of Minneapolis, said that he had often observed this fluidity, but could offer no explanation of the event.

Dr. J. H. DUNN, of Minneapolis, said that in the clotting or non-clotting of blood the personal element or possible idiosyncrasy of the patient must be taken into account. He had seen marked variations in the rapidity with which blood would clot when withdrawn from the body.

Dr. R. O. BEARD, of Minneapolis, thought that the problem of fibrin formation in the peritoneal cavity was the same problem as that of fibrin formation in the blood vessels. The living healthy wall of the blood vessels exercises a trophic influence over the blood, and so may the intact and healthy peritoneal surfaces. The surfaces are always bathed in lymph which has clotting power, but does not, under normal conditions, clot. Injury or disease of the walls of the peritoneal cavity, or of that portion of it into which blood is shed, probably determines the death of the blood, the appearance of the fibrin ferment and the consequent fibrin formation.

Dr. ABBOTT said that he could not see that this explanation explained the variance in these cases.

Dr. DUNN insisted upon the personal differences.

Dr. ROGERS thought that the presence or absence of septic conditions might have something to do with it in some cases.

Dr. W. A. HUNT, of Northfield, read a thesis entitled

THE RELATION OF THE STATE TO THE EPILEPTIC.

See page 1.

The discussion was opened by Dr. ARTHUR SWEENEY, of St. Paul. Complimenting the paper, he said that his own views coincided closely with those of the author of the paper. He had well emphasized the duty of the state toward this class. The duty of the state is a duty toward the individual as well as towards its citizens *en masse*. The tendency of the times is toward a paternalism in government. It is seen in the establishment of schools and of libraries, in the provision of water supply, fire protection and park improvements. In a word, we are growing towards a modified socialism, which has been brought about by a recognition of the duty of the state towards the individual. With this view, it is difficult to see why the state, which provides homes for the pauper and the criminal, should not care also for the epileptic. All of us know from experience how generally incurable is epilepsy. The history of epileptic homes has already shown how much may be done for this class by conferring upon them suitable surroundings, and by the avoidance of causes of excitement. He said it should be remembered that not all epileptics have fits. Rather is a general degeneration the stamp of this class, which shows itself not always, or but seldom in some, in epileptic attacks. He recalled the experience of Dr. Jackson, who, studying the problem of degeneration, selected a newsboy from the streets of Chicago and took him home, keeping him under constant observation. The boy gave all the stigmata of degeneration. Dr. Jackson discovered not only that he was essentially vicious and degenerate, but that he had periodic weekly attacks of vicious propensity. He referred, in a similar direction to his own studies of the criminal classes in the city of St. Paul and, especially, of one boy who had the serious record of 140 arrests. The duty of the state should extend to the continued care of such defectives. How absurd to arrest and subject to trial a man or a boy 140 times! He should quickly be recognized as a degenerate from whom society should be protected, who also needs protection from himself. It is a matter of reproach to all of us that there are from 1,300 to 1,400 physicians in this state who are intimately acquainted with its legislators, but who have less influence in the making of the laws than have the cheap politicians. Every physician should see to it that his influence is felt in the passage in the coming legislature of some law of value from a medical or scientific point of view.

Dr. T. F. DeWitt, of St. Paul, read a thesis entitled

THE RADICAL CURE OF HERNIA.

See page 23.

The discussion was led by Dr. J. H. Dunn, of Minneapolis. The paper, he said, covered the subject so thoroughly that very little was left to be said. Upon the use of non-absorbable sutures he would say that he had employed silver wire habitually; that he had had little trouble with it, and that his cases had not often suffered relapses. He had employed both catgut and silk but not the kangaroo tendon. In one case, in which he had employed silk sutures, suppuration had resulted. It had been difficult to get the sutures out, and suppuration had continued for nearly a year. The patient ultimately recovered and has remained well. It is to the advantage of silver wire that, with its use, it is not necessary to draw the sutures so tightly. There is the one objection that irritation is caused by the wire stitches, but, so far, this had not been a serious matter to him. All in all, the silver wire he regarded as the best, although he was not disposed to be dogmatic about it. He thought that the indications given for operation were fairly just. He had always supposed that with children under 13 or 14 it was not desirable to operate. The best reason for this is that in young subjects cure is very often effected by a truss properly fitted. He knew that much faulty fitting occurred at the hands of druggists and others, but with careful fitting he had seen many cases of cure. Under the age of puberty, he should not advise operation. Another good reason for this conclusion is that it is so difficult to prevent the infection of the wound in young children. Individual peculiarities must be considered in the matter of operation. He believed that success is conditioned on the care which is bestowed upon each case and upon the wise choice of sutures.

Dr. J. T. Rogers, of St. Paul, said that he had not had much experience in his field of surgery, but in regard to the use of non-absorbent sutures he would say a word. He had removed from a patient recently an interrupted silk-worm gut suture which had been a cause of great irritation for some time. Upon general principles he deprecated the use of non-absorbable ligatures, and as one reason for this, urged the inconvenience which resulted in the use of a truss after operation. He had seen Kocher operate upon several cases of hernia in children, and with good success.

Dr. J. W. Little, of Minneapolis, asked if the kangaroo tendon used had been prepared by dry sterilization.

Dr. Dunn, replying to the criticism of silver wire sutures, said that the local irritation they excited was sometimes of advantage in causing the formation of more fibrous tissue which materially strengthened the part.

Dr. Gustav Renz, of St. Paul, considered it a matter of no consequence what sutures are employed, so far as suppuration is concerned. Whether of silk-worm gut, catgut, wire or kangaroo tendon mattered not, provided the sutures are properly sterilized and provided the field of operation be made sterile.

Dr. A. W. Abbott, of Minneapolis, had a word to offer upon the pathology of this condition. He suggested that in all openings made in the lower part of the abdominal cavity where pressure occurs, whether they be rectal, vaginal or inguinal, the opening is in the nature of a lap valve, and never in the axis of the opening. He had noticed this in the case of the inguinal opening, particularly in making Alexander's operations. The transversalis laps over the canal and the cord takes a marked turn in passing through the passage. In abdominal post-operative hernia there is an absence of this lap arrangement which favors the occurrence of hernia. While the muscles are drawn together in strain there is nothing to prevent the intestines serving as a wedge to force them apart.

Dr. DeWitt, in closing, said that he was indebted to the Academy for so free a discussion of his paper, and for the kind treatment it had received. Nearly a year had elapsed since he had written the paper, and one or two of his ideas had materially changed since that time. Operations upon animals had shown that gut sutures had remained unabsorbed, sometimes for several weeks, but he had seen cases of very rapid absorption of kangaroo tendon. He had had good results with the latter, but was inclined to think that surgeons would have to fall back upon the non-absorbable sutures, and of these the silver wire is certainly the best. Bad results with kangaroo tendon had sometimes been due to the difficulty of its sterilization. That offered for sale was not safe, but thorough sterilization can be made in bichloride alcohol. In regard to not operating upon young patients, he said he had seen cases in which a truss could not be adjusted so as to hold the hernia, and these cases, of course, demanded operation. If a truss holds well it is better to wait. He had preferred kangaroo tendon, not because of a fear of immediate suppuration, but because of the remote suppuration which often followed from the irritation of non-absorbable sutures, the local irritation attracting pus germs. In regard to the question of opening the sac, he had once supposed that all surgeons followed this practice; but he had later found that some skilled men, notably Laplace and Kocher, were not doing so, and he regarded this latter practice as dangerous.

WABASHA COUNTY MEDICAL SOCIETY.

W. F. Wilson, M. D., Secretary.

The Wabasha County Medical Society held its semi-annual meeting on Thursday, January 14, at the office of Drs. Milligan & Bray, at Wabasha, about twenty physicians being in attendance. It was voted to hold the next meeting at Mazeppa on the second Thursday in July, 1897. The following resolution was unanimously adopted by the Society:

"We, the Wabasha County Medical Society, learn with deep regret that Dr. C. N. Hewitt has ceased to be a member of the State Board of Health. We have found him a very efficient officer and eminently fitted for the position which he has for so many years filled, and fear that it will be long before a successor so able and acceptable to the public and profession will be appointed."

Following is the program which was provided for the occasion:

FORENOON SESSION.

1. President's address, Dr. W. T. Adams, Elgin,
2. Puerperal Sepsis, with Report of Two Cases, Dr. C. W. Bray, Wabasha.
3. The Use of Crookes' Tube as an Aid to Diagnosis, with exhibition of skiagraphs, Dr. J. G. Cross, Rochester.

AFTERNOON SESSION.

4. Diseases of the Blood, Dr. J. C. Adams, Lake City.
5. Paper by Dr. C. H. Mayo, of Rochester, on Septic Disease of the Knee Joint.
6. Report of cases.
7. Transaction of business.

BOOK NOTICES.

A Treatise on Surgery by American Authors. Edited by Roswell Park, A. M., M. D., Professor of the Principles and Practice of Surgery and of Clinical Surgery in the Medical Department of the University of Buffalo, N. Y. Volume II. Illustrated. Phila: Lea Brothers & Co. 1896.

This volume is devoted to special and regional surgery in contrast to volume I., which dealt with the general principles of surgery and with surgical pathology. Its contributors are among the foremost American surgeons, and each writes of that department of the art with which his name has been particularly identified. Thus Bradford, who is teacher of orthopædic surgery at Harvard, contributes a paper upon the surgical diseases and injuries of the spine, Kelsey writes upon the rectum, Belfield upon the surgery of the genito-urinary apparatus and Gerster upon plastic surgery. The surgery of the abdomen is in the hands of Maurice Richardson, whose bold and original operative work upon the stomach and œsophagus, as well as his almost unrivaled experience with appendicitis, make him at once a leader and a pioneer in this work.

Anatomical Atlas of Obstetric Diagnosis. By Oscar Schaeffer, M. D. Illustrated. New York: William Wood and Company. 1896.

This volume is No. IV. of the series known as "Wood's Medical Hand Atlases," of which the earlier issues have received favorable notice in these columns. The present work is well up to the standard set for these works. As an atlas its chief interest is in the plates, which are numerous and handsome, all being done in colors. The normal anatomy of the parts is taken up first, then deformities, anomalies, tumors and other abnormal conditions, the last chapter being devoted to general considerations upon obstetric therapeutics, which are here dealt with in an original manner in the form of a tabular view.

Reference-Book of Practical Therapeutics. By Various Authors. Edited by Frank P. Foster, M. D. In Two Volumes. Vol. I. New York: D. Appleton & Co. 1896. [Price, per volume, $5.00].

In the form of a small encyclopædia the author has given a collection of articles upon drugs and various therapeutic measures written by a number of medical men whose names have become well known to the profession. The object of the work, as its name indicates, is to furnish a ready reference book for the use of the physician who wants to get practical information upon therapeutical subjects and wants to get it as quickly as possible. The book must not be mistaken for a materia medica, a mere treatise upon drugs with their therapeutical application. It is much more than that, and contains a paper on climatic treatment by Charles Denison, of Denver, one on electro-therapeutics by Frederick Peterson, of New York, one on the inhalation method of treatment by Solomon Solis-Cohen, and other papers by equally well known authors, writing upon subjects to which they have devoted special study. On this account the work is a unique one which will be found to deal with its subject in quite a new way.

MISCELLANY.

BOOKS AND PAMPHLETS RECEIVED.

Autoscopy of the Larynx and Trachea. By Alfred Kirstein, M. D. Phila: The F. A. Davis Company. 1897. Price, seventy-five cents.

Leprosy and the Charity of the Church. By Rev. L. W. Mulhane. Chicago: D. H. McBride & Co.

The Proper Indications for Repair of Pathological Lacerations of the Cervix Uteri, and the Proper Operations to Meet Them. By Albert Goldspohn, M. D. Reprint.

Tubo-Ovarian Cysts, with Interesting Cases. By Albert Goldspohn, M. D. Reprint.

Errors and Modern Methods in Minor Gynæcology. By Albert Goldspohn, M. D. Reprint.

Heredity. Its Significance in Life Insurance. By Thomas H. Rockwell, M. D. Reprint.

The Want of College Instruction in Electro-Therapeutics. By Robert Newman, M. D. Reprint.

The Treatment of Tuberculosis and Other Infectious Diseases with Oxytoxines. By J. O. Hirschfelder, M. D.

Gastrostomy by a Circular Valve Method. By Emanuel S. Senn, M. D. Reprint.

E. B. Treat, Publisher, New York, has in press for issuance early in 1897, the *International Medical Annual*, being the fifteenth yearly issue of that well known one-volume reference work. The prospectus shows that the volume will be the result of the labors of upwards of forty physicians and surgeons of international reputation, and will present the world's progress in medical science. The value of the work will be greatly enhanced by the thoroughness of illustration, both colored plates and photographic reproductions in black and white will be used wherever helpful in elucidating the text. The volume will contain about 700 pages. The price will be the same as heretofore, $2.75. Full descriptive circular will be sent upon application to the publisher.

"POLYNICE OIL."

The following letter was received by the editor of a magazine published in St. Paul, who has turned it over to the LANCET on the ground that the information it contains is interesting and valuable to the medical profession, if to any.

NEW YORK, October 28, 1896.

To the Editor:—On the 3d and 6th inst., in the New York *Herald* and in the *World*, of same city, it has been announced the arrival of Doctor Alexander, a specialist, from Paris, France, for cure of rheumatism. A long insertion has been printed in these two newspapers on the above dates of this present month, telling about the experiences made at the Bellevue Hospital with the Polynice Oil, in presence of the best medical notorieties of said hospital.

This wonderful oil cures rheumatism specially; also many other troubles. To show the marvelous and unquestionable results of his medicine, Doctor Alexander treated, free of charge, the patients at Bellevue Hospital, and people were coming to that institution by car loads.

Doctor Alexander, his experiences having been very successful in New York, intends to go to your town of residence very soon, and to avoid the crowding of patients he tells me to write you, on his behalf, being his interpreter, and him not speaking English, to say that he will continue his experiences free of charge with the Polynice Oil during his stay in said town; but that the patients who wish to be treated must make application for interview by writing to Doctor Alexander here in New York, at 253 West 13th Street, and it will be faithfully responded if a postal stamp be inclosed. In their applications patients must state age, business, how long they are troubled with the disease, and also what kind of treatments they have undergone up to this day. I will telegraph you, Mr. Editor, the day of departure of Doctor Alexander from New York to your city. It is useless to speak of the results of this wonderful oil; it has been tested, and one can rely upon the testimonials in the newspapers, the New York *Herald* and the New York *World* of 3d and 6th inst. Applications can be written either in French or English.

If you think, Mr. Editor, that the insertion of my letter will be of an interesting news to your readers, among which many must suffer from rheumatism, I hope you will kindly benefit me with any amount paid for, and also kindly send me the paper in which this news will be inserted. I will be much obliged.

Should any other explanations be agreeable to you in regards to this French discovery made by Doctor Mabille, of the faculty of Paris, France, please address me. I am yours truly,

GEORGES BENSON.

Address 153 West 28th Street, second floor, New York, N. Y.

Prof. W. W. Keen, of Jefferson Medical College, in a paper in the *International Medical Magazine*, states that the control of hemorrhage is one of the most difficult problems in connection with the removal of cerebral tumors. Hemorrhage from the diploë is easily controlled by Horsley's antiseptic wax. For hemorrhage from the vessels of the meninges the ligature is an efficient means of control. If the dura be cut and an artery bleeds, the cut end can be tied just as any other vessel. If it be necessary to ligate a vessel in its continuity, the dura being unopened, though with torn vessels, it can be secured by passing fine silk thread by means of the finest semicircular Hagedorn needle under the dura and around the vessel, care being taken not to wound the underlying cerebral veins themselves. For venous hemorrhage, the best method, also, is the ligature. Rarely can the vessel be seized by the forceps and a ligature applied. Pass by means of the semicircular needle, of suitable size, a silk or catgut ligature through the cerebral tissue immediately below and around the vein, and then tie the vessel by drawing with equal force on the two ends, not constricting the vessel with so much force in tying the knot as to tear through its weak walls.

NOTES.

HYDROZONE IN GASTRIC AND INTESTINAL DISORDERS.

A period of nearly twelve years has elapsed since I first began the clinical use of hydrogen dioxide, generally referred to at that time as the peroxide of hydrogen. In 1887 I published a paper giving a detailed account of several cases in which it had been employed by inhalation, but even then I was thirty years behind the report of Dr. (now Sir) Benjamin Ward Richardson, of London, who had made a thorough investigation of its antiseptic, detergent and healing properties. Notwithstanding the fact that this preparation had been known to the medical profession for that length of time it had achieved little or no reputation. This, however, may be explained by the fact that the discovery preceded the dawn of bacteriology.

In the present communication it is my object to direct the attention of the profession to its special value in the treatment of gastric and intestinal disorders. In gastritis, for example, there is no antiseptic which can be given with so much benefit as this remedy, because its effect is immediate, and even in considerable doses it is absolutely harmless. The same is true in regard to its employment in typhoid fever, cholera infantum and Asiatic cholera. In the latter disease its efficacy has been thoroughly demonstrated by a number of well known physicians, and its applicability in cholera infantum is well known to those physicians who have given careful attention to the most modern methods in the treatment of this class of cases.

The following brief notes will be sufficient to indicate the availability of this remedy in the treatment of the disorders already mentioned, although, in view of the fact that hydrozone is a more concentrated product, and withall a permanent solution, this latter remedy should have the preference. It contains at least double the volume of nascent oxygen which has heretofore been the standard for the medicinal peroxide of hydrogen.

In gastritis, either acute, subacute or chronic, we have to deal with an unhealthy condition of the lining membrane of the stomach. The inflammation is attended with an increased output of mucus, which seriously interferes with the normal functions of the peptic glands. By the introduction of a small quantity of hydrozone, in the strength of one part to thirty-two parts of boiled or sterilized water, this objectionable mucus is at once destroyed by the action of the oxygen which is released, and the contents of the stomach remaining are promptly discharged into the small intestine. A patient suffering from gastritis should take at least half an hour before meals from two to four ounces of diluted hydrozone (one to thirty-two) and lie on the right side so as to facilitate the action of the stomach in discharging its contents.* The antiseptic properties of hydrozone thus used are sufficient to destroy the microörganisms and leave the stomach in a healthy condition for the absorption of nutritive pabulum. All forms of fermentation are promptly subdued by the active oxidation resulting from the liberation of nascent oxygen. The patient is then in a condition to take suitable food, which should be nutritious and easily digested, liquids being preferred until the active symptoms have subsided. Later, small portions of solid food can be ingested, but all food stuffs of a starchy character must be thoroughly masticated, in order to secure the action of the salivary secretion upon the starch granules, breaking them up, and lessening the tendency to fermentation in the stomach. After taking a meal, a patient with gastritis should follow it with medicinal doses of glycozone, which contain, in addition to the nascent oxygen contained in hydrozone, a percentage of glycerin which favors osmosis and assists in reëstablishing the functional activity of both the peptic and mucous glands of the organ.

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* In chronic cases with a large output of gastric mucus, and particularly of gastric ulcer, concentrated solutions are not well borne at first, owing to the formation of oxygen gas, but this difficulty disappears with the continued use of the remedy, and no treatment of gastric ulcer can be regarded as complete without the local employment of hydrozone.

In the treatment of cholera infantum, typhoid fever and Asiatic cholera, the same general plan should be adopted in dealing with the stomach, always bearing in mind the necessity for having the patient remain in the recumbent position and on the right side for at least half an hour after the ingestion of the solution. In addition, however, to the preliminary treatment of the stomach, the same solution (one to thirty-two) is used as an injection into the lower bowel, care being exercised to insure its introduction as high up as possible. This can be managed by having the patient lie on the left side, with the hips well elevated, and the employment of a long, flexible rectal tube. In this manner we secure and maintain an antiseptic condition in both the stomach and large intestine, the importance of which will be understood when we consider the large number of microorganisms which grow under these favorable conditions with such remarkable rapidity.

When deemed advisable, the solution introduced into the lower bowel may be combined with large quantities of either hot or cold water, which enables us to obtain the benefits of irrigation in addition to the antiseptic effects. These irrigations may be employed as frequently as deemed advisable by the medical attendant, but they will usually prove satisfactory if administered at intervals of four hours.—-John Aulde, M. D., Philadelphia, Pa., in *New York Medical Journal*, August 15, 1896.

A CONSTITUTIONAL RIGHT.

The protection of life was made a fundamental principle of the constitution of the United States; and it seems to us that when a physician prescribes a remedy which he thinks essential to restore the health, or to preserve the life, of a patient, any attempt to change that remedy is a violation of a very sacred right. But this is just what men do when they substitute a cheaper, or any other, remedy, or when they give a false formula for compounding a remedy known to be efficacious. The expense of crushing out this evil falls upon the manufacturers, and every successful effort in this line deserves the commendation of the profession and the medical press. We are glad to note that the Sultan Drug Company, of St. Louis, has gained a signal victory in the United States courts over one such enemy of mankind. In a decree, recently rendered, George P. Engelhard, of Chicago, has been perpetually enjoined from issuing so-called formulæ of "Cactina Pillets" and "Seng," which names, and the formulæ for which compounds, belong to the Sultan Drug Co.

Dr. Lawrence's treatment for acne pustulosa: "A young lady, Miss Lizzie F., was having a constant recurring eruption of acne vulgaris, which commenced with dark red papules. These became pustular, and caused pain on the least pressure. They would open, and after their contents were evacuated, would form scabs with the core still there. Sometimes the core would be discharged, when healing would take place rapidly. She had no menstrual or uterine disorder which could possibly aggravate it, and it was just as bad between periods as at the catamenia. I used mercurial and sulphur ointments without success, and had really concluded to give up the case until I tried Pineoline with such gratifying results. Two boxes were sufficient to cure the case, but I had her apply the third box for the purpose of insuring the cure. She had no relapse after two months."

Dr. Bartholow recommends as an excellent expectorant in cases of chronic bronchitis and bronchorrœa:

℞	Eucalyptol (Sander & Sons')	1 ounce
	Ammonii muriat	2 drachms
	Ext. glycyrrhizæ	3 ounces
	Syr. Tolu	3 ounces

M. S. A tablespoonful four or five times a day. —From *Med. Brief*, June, 1891.

THE DIET IN CHRONIC DIARRHŒA OF INFANTS.

If the child be under one year of age the diet must not go beyond the range allowed at that period of life. Barley water and whey, perhaps milk, according to circumstances, and Mellin's Food, raw meat juice, white of egg or yellow of egg with water, mutton broth, weak beef tea, is a sufficient list of foods. It is generally asserted that animal broths are deleterious in diarrhœa. Used in small quantities cold I have not noticed any prejudicial effect, and certainly the number of stools has not appeared to be increased. "Treatment of Disease in Children," Angel Money, M. D.

WANTED.

A position as office girl, with a physician or dentist, by one who has had experience in the work and can give reference. Address Miss M. A. Finn, 344 Ramsey Street. 4

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ORIGINAL ARTICLES.

OSTEOMYELITIS.*

By James E. Moore, M. D.

Minneapolis.

To the members of this Society this is a threadbare subject, but all will admit that there is abundant need of a wider spread knowledge of the diagnosis and treatment of this affection. There are also many points in pathology that will bear more research.

The name osteomyelitis, which is said to have been coined by Nelaton, answers a very good purpose, because it draws attention to the fact that this abnormal condition is an inflammation beginning in the medullary canal. In using this name it should always be remembered that it means an acute suppurative inflammation beginning in the marrow of the bone, and differing from other acute suppurative inflammations only on account of the anatomical structure of the part involved. It is, in short, a phlegmon of bone, and demands that all of the principles of treatment applied to a phlegmon of soft parts be applied to it, together with a few special principles dependent upon the anatomical structure of the part. The name should never lead us to look upon this affliction as a special disease with a special pathology. This was the idea of older writers, who were constantly looking for the specific cause of the so-called disease.

That this pathological condition under consideration is an acute inflammation, and that pyogenic germs are always to be found, and that it is consequently an acute suppurative inflammation, all modern pathologists are agreed. We have passed through bacteriaphobia in its various stages, and have arrived at that point where we understand that while pathogenic bacteria, usually staphylococci, but sometimes streptococci, are essential for the development of this disease, they are by no means the only cause. That a whole train of auxiliary conditions is necessary, all are agreed, but just how great a part each factor plays offers a rich field for investigation. The time is doubtless coming when we will be able to place as accurate an estimate upon some of these associate causes as we now can upon the part of pathogenic germs. It is also true that some very essential features, those belonging to that mysterious something known as vital force, will never be understood.

Traumatism plays an active part in many of these cases. Long before the pathology was understood, it was known that when the marrow of the bone was exposed either by fracture or by the surgeon's instruments, serious consequences were liable to follow. When we have a compound fracture with the entrance of abundance of dirt into the wound, we can readily understand how we can have the full train of essential causes of an osteomyelitis. When we have a traumatism not exposing the bone marrow, but causing a contusion of bone and an abrasion of the skin, we are obliged to go somewhat upon theory, and we conclude that the contusion of bone has caused a clot of blood in the medulla which acts as a *locus minoris resistentiæ*, and that germs that have gained entrance into the body through the abrasion in the skin have been carried through the circulation of blood or lymph to this point of resistance, where they find the necessary conditions for their growth and development. The greatest stress upon our imagination, however, comes when we meet with a case of osteomyelitis in which there is no history of a traumatism, and where no abrasion or other entrance way for germs can be found. In this case we are obliged to theorize very extensively, but we are equal to the occasion. The easiest way out of this difficulty is to gravely announce that the patient has "caught cold." The patient and a large part of the profession are perfectly satisfied with this highly scientific explanation. From time immemorial it has been customary to attribute many diseases whose pathology was not understood to the ravages of cold. How often are we all guilty of subscribing to this ancient pathology by allowing a patient's statement to go unchallenged when he declares that he has caught cold, and that some disease, the cause of which is well understood, is the result. A few years ago we had many patients suffering from inflammation of the bowels due to cold. A little later we had idiopathic peritonitis due to cold. Now we have peritonitis due in the majority of instances to appendicitis. There are those, no doubt, who attribute appendicitis to cold, but most of us think differently. Of late the diplococcus and cold have had a serious controversy over pneumonia.

That cold may play an important part as an auxiliary cause of many diseases none will deny but that it plays a very important rôle in osteomyelitis I question very seriously. If it does, why is it that children are affected more frequently than adults, and why is it that there is not a preponderance of cases in cold climates?

The bones of the young seem to afford the best soil for the development of pyogenic germs, since the disease is much more frequent in children. The disease attacks the end of the diaphysis and sometimes the epiphysis, where the processes of development are the most active.

The exanthemeta and continued fevers are frequently forerunners of this disease, and evidently bear some causative relation to it. It has been claimed that the pneumococcus and the bacillus of typhoid may cause osteomyelitis, but I do not know of an instance where either of these germs have been found alone in this disease. It would seem that these diseases, in some way that we do not understand, prepare the soil, so to speak, for the development of pyogenic germs.

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* Read before the Minnesota Academy of Medicine, January 6, 1897.

It is evident, therefore, that while there are many causes of osteomyelitis, the one essential element that we know most about is the pyogenic germ. In short, no pyogenic germ, no osteomyelitis. Our best efforts at prevention and treatment must, therefore, be directed toward the exclusion and extermination of germs. Efforts at prevention can only be intelligently employed when we have an open wound. An abrasion of the skin, when accompanying a contusion of bone, should always be treated antiseptically.

There is probably no disease of so frequent occurrence and of so great importance in which mistakes in diagnosis are so prevalent as in this one, so I know you will pardon me if I mention very briefly the symptoms of a typical case: A marked chill, followed by a high temperature, and a very severe pain in the part affected, without swelling or redness, is the early history. Swelling comes on from five to eight days later, followed by redness and fluctuation. There is complete loss of function and great tenderness. The pain is deep and boring in character. The patient frequently says that the leg is breaking. Pressure over the affected bone will cause pain at the seat of the disease.

The swelling comes late, because at first the inflammation is confined to the medullary cavity, and cannot cause swelling until it works its way through the hard bone to the periosteum and surrounding soft parts. The severe pain is due to the fact that the bone does not expand, and a sudden relief from pain is evidence that the pus has burrowed through the hard shell and relieved the pressure.

The diseases for which this inflammation has been mistaken are too numerous to mention, so we will note but a few of the most important.

It has very commonly been diagnosed as suppurative periostitis, which has led to faulty treatment. Acute suppurative periostitis very rarely occurs except when secondary to osteomyelitis.

A large majority of cases of osteomyelitis are mistaken for rheumatism. This is a mistake that can usually be avoided by a very little careful comparison. Rheumatism is not nearly so serious an illness; the pain is not so severe, and is in the joint; the tenderness is over the joint, and swelling comes on early in the joint.

A simple synovitis may accompany an osteomyelitis owing to the interference with the circulation, but it is confined to one joint, whereas in rheumatism a number of joints are affected. *Rheumatism is not a suppurative inflammation.*

Some older writers described osteomyelitis under the name of typhoid of the limbs, and the disease is many times mistaken for typhoid fever at the present day. In a certain few cases the infection is so severe that the patient passes very quickly into an unconscious state, so that the local disease may be entirely overlooked. Ordinarily, however, the local symptoms should establish the diagnosis, since they do not belong to the clinical history of typhoid fever.

Osteomyelitis, when accompanied by a synovitis, has been mistaken for an inflammation of the joint, but it is much more painful than a simple synovitis, and the pain and tenderness are not at the joint. Later in the disease the pus may find its way through the cartilage into the joint, when we have suppurative synovitis as a complication. Careful attention to the early history of the case should enable us to decide that the original disease was in the bone.

Acute suppurative arthritis of childhood is an osteomyelitis extending to the epiphysis.

There are some cases of osteomyelitis that run a much milder course than the typical variety above described. It is just the same in every particular save that all of the symptoms are milder. It is probably always a suppurative inflammation whether pus reaches the surface or not.

The treatment of osteomyelitis depends upon whether it is in the primary, intermediate, or necrotic stage. In the primary stage, all surgeons are agreed that the proper treatment is free opening into the medullary cavity *as soon as the diagnosis is established.* When this affection was treated as a periostitis, the treatment was necessarily faulty, because the surgeon stopped as soon as he had incised the periosteum. I know from personal experience that it required all of my courage to deliberately cut through a suppurating periosteum and open the medullary canal, after having believed for so long that the periostitis was the disease, but I have never had occasion to regret opening the medullary canal in these cases. This is no place for half way surgery.

Opiates are, of course, indicated to relieve pain, and the application of cold is advised. The application of iodine and the like is worse than useless, because it does no good and is liable to delay the proper treatment.

The operation is a very simple one and is best done with a mallet and chisel. Point pressure should be made over the affected bone before anæsthetizing the patient and the greatest tenderness will be directly over the central focus of disease, and is due to the beginning secondary periostitis, which is usually confined to the point directly over the diseased medulla. The Esmarch bandage should be used to save loss of blood and to enable the surgeon to see what he is doing.

At an early stage, the medulla will be found of a red or brownish color, and later ordinary pus will be found. The diseased tissue should be scooped out, the cavity thoroughly cleansed and lightly packed with sterile gauze. Although this is always a suppurative disease, the strictest asepsis should be observed, because different varieties of germs are not antagonistic to each other, but rather seem to help each other along; so it is our duty to see that no new varieties are introduced. The patient experiences immediate relief from pain, and his temperature promptly drops. The subsequent treatment should be carried out on general surgical principles.

I have frequently been asked why it is that a felon is so promptly relieved by an incision through the periosteum if it is not a periostitis. We should remember that under the term felon and its synonyms, we have a number of different conditions to deal with. Many cases are phlegmons of the soft tissues, some are tenosynovitis, but reasoning from analogy, cases of felon in which the periosteum is the primary seat of disease, must be very rare indeed. I say reasoning by analogy, because felons have been better treated than phlegmons elsewhere, and we are seldom called upon to make as elaborate an operation here as in a case of osteomyelitis of the femur, and we have demonstrated beyond all controversy that in the femur this disease does not begin in the periosteum. Free incision, of course, relieves the cases involving the soft parts, and it is quite possible that an osteomyelitis might be relieved by an incision through the periosteum, since the outer layer of bone in the finger is very thin. But we all know that some cases of felon do not get better immediately after an incision, but that the patient continues to suffer, and often has necrosis. These cases are undoubtedly osteomyelitis, and should be treated as such. It is reasonable to suppose that a larger percentage of cases of osteomyelitis in this location may recover without necrosis than when one of the large bones is involved, because the bony walls are thin and the circulation is better.

Unfortunately, the majority of cases of osteomyelitis are brought to the surgeon during the intermediate stage or later. In the intermediate stage, notwithstanding the fact that nature has evacuated the pus or brought it near the surface, the treatment is to open the soft parts freely, and make a free opening into the bone.

It is but a few years since amputation was frequently resorted to in osteomyelitis, but it is very rarely indeed that it becomes necessary under present methods.

When a simple synovitis complicates osteomyelitis, it only requires special attention when the effusion becomes great. When this occurs, aspiration will relieve the distention and usually bring about resolution.

When a suppurating synovitis is present, the joint should be freely incised, washed with salt solution, and drained. In acute suppurative arthritis of children, free incision with drainage is usually sufficient, but there is sometimes a separation of the epiphysis. I have operated upon several of these cases affecting the hip, and in part of them have removed the epiphysis. It is really remarkable how large a percentage of good useful joints is left after this disease. Ankylosis has not occurred in my experience.

The vast majority of cases of necrosis coming to the surgeon are the result of an osteomyelitis. It is not my intention to dwell on this familiar ground, but I have two practical suggestions to make:

First, it is very important that the family physician become interested in this disease, because it is to him that all cases of acute osteomyelitis come first, and upon his diagnostic ability and surgical knowledge depends the future welfare of the patient.

The second point I wish to mention is that patients coming to the physician at a later date, who have sinuses and evident necrosis, should be told that an operation is necessary and that the sooner it is done the better, for without it the case is liable to continue for years.

The cases running a milder course should be treated exactly the same as the more acute cases, because the disease is the same and can be cured in no other way. Some of these cases make an apparent recovery without the discharge of pus, but the patient soon finds that he has recurrent attacks of pain and fever. He is usually treated for rheumatism for a series of years. I operated upon one case in which the disease had continued for twenty years. I found one abscess with a membraneous wall half an inch thick surrounding it, which had evidently been there all those years. This patient said that he had spent the price of a farm for liniments and rheumatism medicine.

It is difficult to estimate the mortality rate from this disease before its pathology was understood, but it was evidently very high.

The cases of pyæmia following compound fractures, amounting at one time to forty per cent., were, of course, cases of osteomyelitis. It is difficult, even at the present day, to make a definite estimate of the mortality rate. I found one estimate of twenty-five per cent. by a recent writer; but judging from my own experience, this is very much too high. With early diagnosis and proper treatment, the mortality rate should not exceed five, or at most, ten per cent., and the majority of the fatal cases would be those in which infection took place in several bones at once. At the present time, probably from eighty to ninety per cent. of cases of osteomyelitis are followed by necrosis. It is rational to believe that when diagnoses are made earlier, and operative measures resorted to more promptly than now, that the number of cases of necrosis will be very greatly reduced.

In conclusion I wish to mention very briefly just one case, illustrating the disease in a flat bone. In the summer of 1895, a physician came from a neighboring town to consult with me concerning a little seven year old patient of his. He stated that the patient had pain and a number of other symptoms that suggested hip-joint disease to him, but that it could not be that, because the patient had only been ill for three weeks and that there was marked swelling about the hip, and that she had been very ill with chills and high fever. I at once suggested osteomyelitis. He brought the little one to the hospital where I operated and found the disease affecting the ilium. Although the disease had been going on for so short a time, I found a sequestrum in the centre of the bone extending through its whole thickness. When the sequestrum was removed, the ascending colon could be seen through the opening. The patient made a complete recovery in a month.

THE TREATMENT OF TYPHOID FEVER *

By L. C. Bacon, M. D.

St. Paul.

I am assigned the presentation of the subject of treatment of typhoid fever, but because of the short paper allowed me and the exhaustlessness of the subject I will present only a general plan of treatment, hoping that it will elicit criticism and discussion. It is the outgrowth of my experience with various measures recommended in this disease, and is at present followed by myself in private practice.

When suspecting that the case under observation is one of typhoid fever the patient is placed in bed, in as large, bright and airy a room as conditions will permit; if possible one where sunlight can be obtained and as far from noise and living rooms of the family as possible. Instructions are given for the disinfection and care of dejections by receiving them into a 1 to 20 carbolic solution and allowing to stand half an hour before being disposed of.

A milk diet is prescribed; an adult must take from two to three quarts in twenty-four hours. The majority of patients can tolerate milk through a course of typhoid fever if care is taken to vary the manner of its exhibition, by giving it cool, iced, fresh, hot, scalded, or simply warmed. An occasional irritable stomach may require lime water and milk in varying proportions, or peptonized milk, but I find such measures seldom necessary.

In the early stages of the disease I find, contrary to the statement of many text-books, that constipation is the rule in the majority of cases, and small quantities of highly colored urine are voided; the mouth markedly dry without feelings of thirst. These conditions are most marked in neurotic and bilious types, and are much relieved by calomel. My plan is to exhibit 2 to 4 grains in 1 grain doses each, combined with from 5 grains of bicarbonate of soda for anæmic to 10 or 15 grains for plethoric patients, and given one-half to one hour apart. A saline following is seldom necessary, though it should be advised if results are not obtained. These measures are invariably followed by increased secretions, slight checking of rising temperature, temporary relief of headache and an increase of the general well-being of the patient to such an extent that one sometimes falters in diagnosis. The continued use of calomel is not wise, for patients are exhausted after repeated exhibitions, and an irritated condition of the intestines remains, marked by persistent diarrhœa and pain.

Should constipation continue an enema daily during the early stages of disease and every second day during the later stages will relieve the patient.

If diarrhœa is the rule in a given case, a mild saline early is beneficial, and if passages are not *very* frequent and profuse, no effort should be made to check them, for they remove toxines from the system, and they soon subside under the influence of the intestinal antiseptic salol. This drug I begin exhibiting immediately after the action of the calomel in cases characterized by constipation and immediately in others, giving it in one grain doses every hour day and night, except when the patient sleeps, until the eighth to twelfth day, when patient's temperature rapidly drops to the neighborhood of normal or below, frequently to 96° Fahrenheit. I then stop salol, apply artificial heat, and give alcoholic stimulants in small amounts, and within twenty-four hours the temperature will have increased to points above normal. Then salol is resumed, but in one grain doses at intervals of from three to four hours.

Salol is, as you know, a salicylate of phenol, and is open to the same objections as salicylates in general, *i. e.*, it may irritate the stomach and depresses the heart's action. However, both of these conditions are prevented or corrected by the exhibition of sulphate of strychnia in solution. I say solution, for we are then sure of its absorption. It was my privilege once to find several gelatine coated pills stowed away in the recesses of a typhoid's mouth.

Salol, through its salicylic acid, assists in the elimination of the products of oxidation. It has some properties as an intestinal antiseptic, and also slight antipyretic properties, with very little activity as a depressant, and this easily corrected, and its effects are uniform, therefore I believe it the proper intestinal antiseptic to use. While salol has some antipyretic action, antipyretic drugs are, as a class, to be avoided. If given in quantities to affect the temperature they affect gastro-intestinal glandular activity, depress the heart's action except in the case of quinine, and produce, in all cases, their specific results by lessening the oxygen carrying powers of the blood, and not by checking oxidation in the tissues, thereby causing the formation of products of deficient oxidation. These are not readily removed from the system, and do much toward weakening the vital forces. All in this way depress nerve vitality. I think we all believe that quite as many deaths are due to the effects of toxines upon the accelerator nerves of the heart and the trophic nerves as to direct fever and tissue change, and that these latter are due to toxines. Quinine checks digestive and assimilative processes, and finally we have better means for combating fever. For these reasons I believe that antipyretic drugs have no place in the treatment of typhoid fever, and that intestinal antiseptics should be used.

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* Read before the Ramsey County Medical Society, September 28, 1896.

The antipyretic action of alcohol is slight, and it is not generally used in the disease; for that effect, therefore, it is not included in the above class.

Fever plays its part among the destroying forces of the disease, and is best combated by cold water. With the first rises of temperature cold sponge baths should be used frequently; as the fever rises be more vigorous. A temperature of 103° or 103½° Fahrenheit will be influenced by six to eight changes of sheets wrung from water at a temperature of from 60° to 70° Fahrenheit, in a fifteen minute pack. It will be necessary to repeat it every two to three hours.' Should the temperature rise above these points a portable bath tub and water at from 60° to 75° Fahrenheit should be used. Immerse your patient ten to fifteen minutes every third hour. Should a very high temperature be present, *i. e.*, 105° to 107° Fahrenheit, the baths should be used frequently enough to make an impression upon the condition. When the temperature drops permanently below 102° stop cold baths.

Observe that during tub baths, constant, vigorous friction of the skin of the patient should be practised, and should the pulse become irritable a hot stimulating drink (tea or whiskey) should be administered.

At the expiration of the allotted time remove the patient to a warm bed, dry quickly, apply if necessary heat to the extremities, resort to brisk rubbing, and administer a hot drink. When reaction occurs your patient will generally be ready for a nap. Always see that your patient reacts after the application of cold in any form.

Do not place your patient in a warm bath and reduce its temperature gradually, for I believe the benefits of these baths are due as much to the shock and the reaction as to the actual lessening of temperature, for in some cases the impressions upon the temperature will be very slight, but the apparent benefits to the patient will be all that are expected.

By following the foregoing plan you will see very little headache, very little restlessness and delirium, and will find that your patient enjoys frequent and regular intervals of refreshing sleep.

In the past four or five years I have not given a sedative or hypnotic in these cases except opium, and that for other purposes.

Stimulants are needed in many cases. I prefer strychnia. Its action is tonic as well as stimulating. It increases gastric activity, and is not followed by a period of depression. When needed at all sharp doses are needed. I give to adults one-fortieth to one-fifteenth grain doses of the sulphate every three or four hours. Most of the digestion of milk takes place in the stomach. Alcohol checks the formation of peptones, and its stimulating effects are followed by a period of depression; besides, it distresses many patients, *i. e.*, nausea and vomiting are caused. Strychnine has not these disadvantages.

I reserve alcoholic stimulants for times when prompt, active stimulation is necessary, *i. e.*, after baths, etc. It is also useful during convalescence.

An occasional dose of opium may be necessary to check diarrhœa or intestinal activity during hemorrhage. Care should be exercised to give no more than necessary to accomplish its purpose: one-half grain, in pill form, with possibly one or two repetitions, will generally suffice, and its exhibition should be followed within twenty-four to forty-eight hours by measures to open the bowels.

Opium lessens secretion as well as intestinal activity, and its exhibition is often followed by distressing tympanites

Intestinal hemorrhage is not frequent, and can usually be controlled by cold drinks, aromatic sulphuric acid, zinc sulphate, sulpho-carbolate of zinc, cannabis Indica.

Alarming tympanites can usually be avoided by the exhibition of oil of turpentine when the symptoms first present themselves: five to ten drops in an emulsion or on a lump of sugar.

Turpentine has been in my hands a most efficient remedy for the cough which is usually a part of the disease.

Tolu, wild cherry, ammonia may be used cautiously, lest the stomach become deranged.

Hypostatic pneumonia and bed sores are not likely to occur under the plan of treatment laid out. The nurse should be instructed to see that the patient changes position from time to time.

The colicky pains which sometimes distress the patient when tympanites is marked, can be relieved by belladonna. I give one-half to one grain of the extract every three or four hours. Opium at such times causes alarming tympanites, and relief from pain is only temporary.

Peritonitis without perforation should be treated upon usual lines. With perforation it needs no treatment.

MULES' OPERATION FOR ARTIFICIAL EYE.*

By Frank Allport, M. D.

Professor of Clinical Ophthalmology and Otology in the Minnesota State University; Ex-President of the Minnesota State Medical Society; Ex-Secretary of the Ophthalmological Section of the American Medical Association; etc.

Minneapolis.

Gentlemen of the Academy:

I take the liberty of presenting before you this evening two cases upon which I have recently operated. I have performed the same procedure upon other patients during the past few weeks, whom I would like to show you did not the fact of their non-residence in this city render them unavailable material.

It may surprise some of you to be told that an eyeball has been removed from each of these patients. The personal appearance is so unimpaired that, to a casual observer at least, the loss of the globe is hardly noticeable.

The removal of an eyeball is a dreadful deformity, when we consider the great hollow orbital cavity, and the stiff, staring, immovable artificial eye, always present in those cases where a complete enucleation of the eyeball has been accomplished, which is the operation performed at present in nine out of ten cases. To obviate this unsightly appearance, some operators perform evisceration, which consists in a scooping out of the contents of the eyeball, and a subsequent collapse and scleral healing. The ocular muscles are not disturbed, but their function is much impaired by the collapsed and cramped position of their fibres. This operation leaves a little nubular protuberance, upon which an artificial shell partly rests, and from which the latter derives, for a few months, some restricted motion; but the procedure is embarrassed by statistical records of irritable stumps, sympathetic ophthalmia, etc., produced by cicatricial pressure upon the sensitive optic nerve fibres.

An interesting point concerning the lady before you is the fact that she came to me with a distinct whitish yellow nodule in the meshes of the iris, which was subsequently shown to be tubercular, by an examination made by Professor Wesbrook of the Laboratory of Pathology and Bacteriology in the Minnesota State University. She had a severe adhesive iritis, which finally resulted in my performing an iridectomy, during which the tubercular nodule and surrounding iritic tissue were thoroughly removed. The immediate effect of the operation was satisfactory, but in a few weeks iritic tubercular nodules started up prolifically, accompanied by painful iritis, until subsequently the eyeball was removed, after the method I wish now to describe.

The operation performed upon these patients was devised some years ago by Mr. Mules, of England, but fell into disrepute owing to various causes, chief of which was a popular and natural repugnance to the inserting and retaining of a foreign body within the scleral cavity, and the subsequent and frequent ejection of the glass ball owing to its too great size and imperfect scleral suturing. The operation is now growing in favor, because of the excellent results obtained under more perfect aseptic precautions and the correction of the faults just enumerated.

The strictest aseptic precautions have been maintained in all my operations, which is, of course more than usually necessary, and I have been assisted by my associate, Dr. Frank C. Todd. The details of the operation are as follows:

First the ocular conjunctiva is freed from the sclera, from the cornea toward the equator of the eyeball. The cornea is removed with knife and scissors, and the contents of the globe scooped out, great pains being taken to thoroughly scrape the sclera, that no choroidal or uveal remnants remained to serve as a focus for subsequent irritation. The optic papilla is also scraped down to a level with the surrounding sclera, in order to do away with the danger of irritation by pressure of the glass globe upon the delicate nerve fibres. The slightly elevated scleral border at the sclero-corneal junction should be smoothed off, when the opening may now be enlarged vertically, and the edges so trimmed that they will come together nicely after the sphere has been inserted.

The next step is to stop the hemorrhage, and this I consider of importance, although I noted that Buller, of Montreal, paid to it but little attention. This is accomplished by hot bichloride tampons inserted into the scleral sac. After hemorrhage has ceased the sclera is carefully inspected, to ascertain if it is perfectly clean, when iodoform tampons are packed in the cavity once or twice, after which the scleral surface will be smooth and dry, and ready for the insertion of a Mules' hollow glass globe.

MULES' GLOBES.

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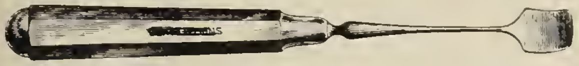
*Read before the Minnesota Academy of Medicine, Januray 6, 1897.



INSTRUMENT FOR SCRAPING THE INTERIOR OF THE GLOBE.

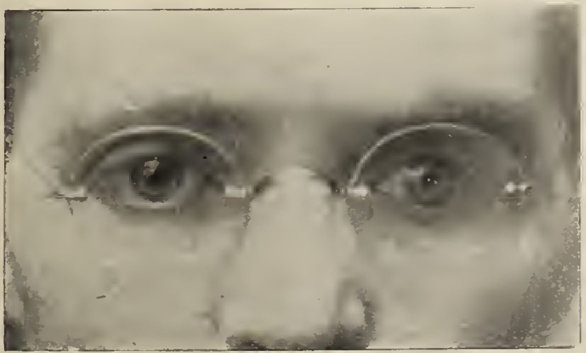
INSTRUMENT FOR HANDLING MULES' GLASS GLOBES.

Several small globes of varying sizes and made aseptic should be ready for use, and from these one is selected which will fill out the orbit and be of sufficient size to communicate motion to the artificial eye to be subsequently used, but small enough to allow for the inevitable inflammation, swelling and shrinkage which will surely follow.

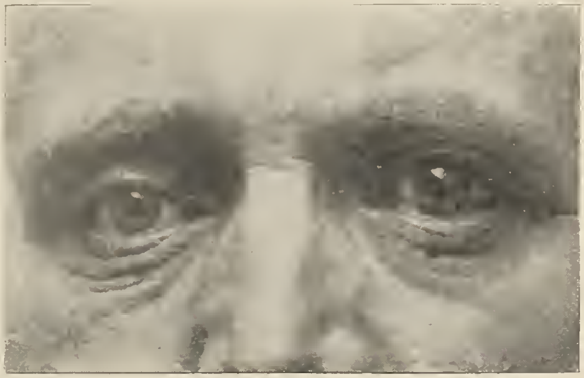
The sclera is now brought together vertically over the glass globe, with five or six interrupted sutures of catgut or silk, which are allowed to permanently remain. The conjunctiva is then sutured horizontally, which sutures are either removed in about a week, or allowed to come out of themselves.

A dressing of iodoform and cotton, kept saturated with an aseptic, antiphlogistic lotion recommended by L. Webster Fox, of Philadelphia, consisting chiefly of lead, opium, and arnica, is then applied, and the patient required to rest quietly in bed. Both eyes should be bandaged. The reaction following is sometimes enormous, but persistence in the use of the lotion, which may be iced if the swelling is severe, will, in from one to two weeks, bring about a favorable result.

In about a month an artifical shell may be fitted, and the cases before you illustrate the superiority of the Mules' operation over any other.



MRS. K. TUBERCULAR IRITIS. LEFT EYE REMOVED.



MR. J. SUPPURATIVE IRITIS. RIGHT EYE REMOVED.

The appearance is natural; the eye has expression and good motion; the orbital cavity is well filled out, and the annoying and repulsive lachrymation noticed after other operations is not present, owing to the juxtaposition of the artificial eyeball and the puncta.

I would not hesitate to use this method in a suppurating case, and consider it a great and humane advance in ophthalmic surgery.

602 Nicollet Ave.

A NOTE UPON THE APPROXIMATE ESTIMATION OF UREA IN URINE.*

By A. W. Abbott, M. D.

Minneapolis.

The principal rapid methods for the approximate estimation of the amount of urea in urine in common use are Squibb's hypochlorite and Marshall's and Doremus' hypobromite. Liebig's nitrate of mercury process is too complicated and slow for the ordinary practitioner.

In Squibb's process the urea is estimated from the water displaced by the nitrogen evolved by the decomposition of urea by the solution of chlorinated soda of the U. S. Pharmacopœia, and on the basis that .0027 of a gramme of urea will produce 1 c. c. of nitrogen. This test is undoubtedly accurate with a fresh solution, and the solution and apparatus are easily prepared. It is rather slow, however, compared with the hypobromite processes, and the apparatus is not quite so simple and easily manipulated. The hypobromite methods differ only in the apparatus and depend on the evolution of nitrogen by the hypobromite of soda made by dissolving 1 c. c. of bromine in 10 c. c. of strong solution of caustic soda, 10 to 25. Dr. Rice adds sodium bromide or potassium bromide to the ordinary hypobromite solution to make it permanent. Marshall's apparatus is graduated in c. cs., while that of Doremus is graduated to represent the space occupied by the nitrogen evolved from .001 of a gramme of urea. The accuracy of the hypobromite process depends with these instruments on the accuracy of the graduation and the freshness of the solution. Dr. Squibb has shown (*Ephemeris*, Vol. 3, No. 6, p. 1334) that the ordinary hypobromite solution deteriorates very much by the third or fourth day, but maintains that the hypochlorite solution is quite stable, and that Rice's solution also keeps very well. Any one who has tried to open a bottle of bromine in his office or even out of doors, knows how difficult and even dangerous it may be, to say nothing of its unpleasant odor. I have found that in the apparatus of Doremus which I have, a two per cent. solution of urea, as tested by a fresh hypobromite solution, there is an error of apparently .11 to .13 per cent. in the graduation.

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*Read before the Minnesota Academy of Medicine, January 6, 1897.

To overcome the difficulties of the preparation of the hypobromite solution and the possible error in the graduation of the apparatus of Doremus (which, by the way, is more easily manipulated than Marshall's), I would suggest the following combination of the hypochlorite and bromine tests with a way of avoiding as well as correcting the errors in the graduation and readings. Take of Squibb's solution of chlorinated soda any amount and add enough sodium bromide to saturate it completely. It is best to use enough of the bromide so that a little remains undissolved. The yellow color of the bromine is immediately seen. Use the solution in Doremus' ureometer just as the hypobromite solution is used, and then, instead of reading the amount of urea from the gramme marks on the tube, (unless it is known by trial to be accurate), note the mark showing the amount of nitrogen evolved or solution displaced and then fill the tube, emptied of the solution and inverted, to this mark with water, and then measure in a standard c. c. glass the amount of water, which, of course, corresponds to the amount of nitrogen. Multiply the number of c. cs. by .00314 and the product by 100; the result is the per cent. In a test by this method with a two per cent. solution of urea the result was 6.33 cc.=1.99+per cent. as compared with 1.7 per cent by the reading of the Doremus ureometer. A still more convenient way is to mark a Doremus tube in c. cs. from the closed end and read immediately from that the amount of the nitrogen. If the chlorinated solution of Squibb cannot be obtained, it can be readily made, as directed by Dr. Squibb, by dissolving 24 grammes of chloride of lime and 48 grammes of washing soda in water to make about 330 c. c. or about 11 fluid ounces, and filter. I very much prefer Squibb's solution of chlorinated soda to that of other makers, as it had proved to be more uniform and up to standard strength. I have found some other makes very weak and some have utterly failed to decompose the bromide of sodium.

The solution of chlorinated soda and bromide mixed keeps well for at least a month, and perhaps more. I have not had an opportunity to try it for a longer time. It should be kept in a colored bottle and tightly closed with a rubber cork. Prof. Bell, of the University of Minnesota, pointed out to me a probable source of error in the varying quality of the different makes of the chlorinated soda solution. This I found to be true as shown by the experiments mentioned above, but in testing six different samples of Squibb's solution I found them all up to the proper strength except one, and this was from an old partially used bottle which had been left loosely corked by the druggist. The hypochlorite solution should therefore be always purchased in the originial package, or freshly made according to Dr. Squibb's formula. If the hypochlorite solution on saturating with the sodium bromide brings out a good bright yellow straw color it will show that the strength is good and the reaction can be depended on. The mixed hypochlorite and bromide solution is perfectly safe to handle. The odor is not unpleasant, indeed less than the soda alone. It is easily prepared, keeps well, and is very uniform in reaction.*

THE HISTORY OF TYPHOID FEVER.†

By Knox Bacon, M. D.

St. Paul.

Long before there was a beginning of medical literature it is quite probable that as a symptom of disease fever was recognized.

It was looked upon much the same as at the present time, and to ancient observers the course of the disease, then as now, depended upon the height of the febrile condition.

"A preternatural heat, which begins in the heart and is diffused by the arteries over the whole body, sensibly injuring the actions of the body," is the definition of fever given by Hippocrates, Galen, Alexander, the Arabians and others; further no one progressed until the respiratory process was discovered and thought to be the heat-producing centre. This was long after the discovery of the circulation, and until the gradual recognition of the general oxidizing process, fever-producing centres migrated from one part of the body to another, according to the theory of the writer.

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* Since this paper was written Dr. J. Clark Stewart has called my attention to a combination of the solution of chlorinated soda with sodic bromide to be used with Squibb's apparatus proposed by Parke, Davis & Co. It however requires a definite amount of the bromide and does not keep as well as the saturated solution.

† Read before the Ramsey County Medical Society, September 28, 1896.

In the very earliest times a difference in the character of the fevers was noticed, and under the name of typhus Hippocrates describes a number of different conditions. The writings of the Greeks and Romans, during later periods, are very cloudy, though many cases described by them undoubtedly belong to this disease. The physicians of that day, however, did not recognize as distinct diseases the conditions later known as typhus.

Typhus was then used to denote certain forms of continued fevers, and it was not until the beginning of the present century, when more attention was given to the morbid anatomy of disease, that an attempt was made to introduce an anatomical definition for typhus.

In France it was found that in many cases, with all of the symptoms of typhus, a characteristic lesion in the ileum and mesenteric glands was present; this occurred during an epidemic of so-called typhus, all of the fatal cases exhibiting these lesions. About this time an epidemic of typhus was progressing in the British Isle. There, however, intestinal lesions were found absent in their fatal cases. English and French observers admitted a marked difference in the two diseases at that time, failing, though, to realize that they had dealt with something else than a form of typhus.

Thus it was that authorities began to speak of varieties of typhus, according to the morbid anatomy of each case. In 1829 Louis' work gives the name typhoid to the particular fever then prevailing in Paris, and believed to be identical with the continued fever then existing in England, and since Louis used the adjective typhoid the term has been generally sanctioned among French and English-speaking physicians, notwithstanding the fact that the fever instead of being like typhus is unlike it.

Typhoid or enteric fever has, therefore, been separated from the general group of fevers during the present century. It is probable, however, that typhoid fever is of great antiquity.

Hippocrates describes a continued fever, prevalent in autumn, and characterized by diarrhœa, bilious vomiting, tympany, abdominal pains, red rashes, bleeding at the nose, sleeplessness or a tendency to coma, delirium and subsultus, irregular remissions, a long duration and great emaciation. He doubtless refers to this disease. Galen describes a similar disease, as do a number of writers of the seventeenth century who observed the disease in Italy, Denmark and England. Other writers describe the malady during the eighteenth century, and under a hundred different names has typhoid fever been described at different periods, the names being derived from the supposed relationship to typhus fever.

After the appearance of Louis' work in 1829, in which typhoid and typhus of English writers were spoken of as identical and till the issue of 1841, the question of identity or non-identity of these two fevers attracted the widespread attention of medical men of Britain and the continent.

About this time Drs. Gerhard and Pennock, of Philadelphia, were studying under Louis, and upon their return to this country, after further studying these diseases in the hospitals of Philadelphia, clearly set forth the distinction between these two fevers, the facts of which had then only gradually began forming in the minds of British and continental physicians.

In 1838 and 1839 Jackson and Hale issued two excellent works on typhoid fever, from the Massachusetts General Hospital. Gerhard's writings together with the papers of Jackson and Hale paved the way in this country for the recognition of typhoid from typhus fever long before the difference was recognized in Europe. English and continental physicians were not idle, however, for from 1836 to 1840 A. P. Stewart studied the continued fevers in Glasgow, though it was not till 1849 to 1851 that the question was settled in England by Dr. Jenner.

THE PROPHYLAXIS OF TYPHOID FEVER.*

By Arthur W. Dunning, M. D.

St. Paul.

Whenever the etiology of a disease becomes so well established as has that of typhoid fever, the indications for its prevention become an almost exact science.

There are two principal objects to be attained: First, the prevention of the use of contaminated food and water supplies, and all other sources of common infection. This duty devolves principally upon the health department, together with those officials who have to do with establishing and inspecting these sources of supply.

So long as communities take their drinking water from cisterns, wells, rivers and shallow lakes these supplies are liable at times to become contaminated with the typhoid virus. Hence the necessity for the above-mentioned officials to be always on the alert to prevent, so far as is in their power, the occurrence of such contamination. Hence, also, the necessity for the practising physician always to search for the source of infection in each case of typhoid fever occurring under his observation, and to report the same promptly and to give proper warning to those in the immediate neighborhood of the danger.

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* Read before the Ramsey County Medical Society, September 28, 1896.

The milk supply, too, is a common source of infection, and should never be overlooked in the search for the cause of an outbreak. It is not at all likely that the virus is ever transmitted by the cow herself, yet milk is such a favorable medium for the development of these germs that the least infection through the water used in washing the cans, the udder of the cow, or the hands of the milker is liable to cause widespread disease.

Of course, suspected milk may be rendered absolutely safe by the present methods of sterilization, and water may be purified either by boiling or by very thorough filtration. I believe that the Pasteur filter, properly adjusted, will render any water practically pure.

We have no reason to suppose that the disease is ever taken through the respiratory organs, or through any other than the alimentary tract; yet we must not forget that the bacilli may exist in dry dust and be blown about, and, entering the mouth, be swallowed, or they may fall into various articles of diet, such as milk, fruit, etc.

The second object to be obtained is the prevention of the dissemination of the germs from every known case of the disease. The responsibility here lies directly upon the physician. In the first place the early diagnosis of typhoid is often impossible; therefore every suspicious case should be treated as though it were indeed typhoid until the diagnosis has been positively established.

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Next it is necessary to instruct the patient and attendant, as well as all persons who in any way come in contact with him, as to the nature of the disease and its modes of conveyance, in order that they may the more intelligently coöperate with you in preventing its spread.

All feeding and medicine utensils should be immediately sterilized by boiling water. All linen should be changed often, immediately when in the least soiled, and being removed carefully without shaking, placed in a vessel containing a two and one-half per cent. solution of carbolic acid for six hours before being handled by the laundress. Some good antiseptic should be constantly at hand for the cleansing of the attendant's hands each time that she handles her patient.

It has been my custom always to direct that a strong solution of bichloride (at least 1 to 1,000) be placed in the bedpan in which to receive the discharges, and that they be allowed to remain in this for a half hour before being thrown out, that they may become thoroughly disinfected.

Of course, in this section, where diarrhœa in typhoid is the rare exception rather than the rule, the danger from direct dissemination of the germs is much lessened; still we should in every case endeavor to enforce all these precautions.

Upon the death or recovery of a patient all bedding that cannot be sterilized should be burned at once, the bedstead and furniture should be washed in a strong solution of bichloride, and the room cleansed and fumigated as after other infectious diseases.

These measures, supplemented by a thorough sanitation of the neighborhood or city, a complete sewerage system and an alert and competent health commissioner, will make it uphill business for Mr. Typhoid Bacillus to get up any sort of an epidemic in any community.

Every physician must constitute himself a teacher of the people in his community as to the nature, modes of conveyance and the means of prophylaxis of this disease, and there is no reasonable objection to the proposition that we may not ultimately thus entirely eradicate this much dreaded malady.

THE RESPONSIBILITY OF TREATMENT BY HYPODERMIC INJECTIONS.—An inquiry was held by the coroner of Birmingham relating to the death of a patient at the workhouse infirmary. The evidence showed that a man aged thirty-nine was admitted with acute bronchitis and an affection of the heart. The visiting physician, Dr. Short, ordered a hypodermic injection night and morning of a solution of strychnine. The nurse in charge sent hurriedly for the resident surgeon on the evening of the 18th, saying that she had by mistake given the patient an injection of five drops of morphia solurion, equal to half a grain. Notwithstanding all remedies used the man died some two hours afterwards. The nurse stated that she had given twelve injections of the strychnine previously at the required times. The morphia and strychnine bottles were both alike in style and color and form of label. The cupboard, which contained about forty such bottles, had been cleared out on the previous day, and the bottles she supposed must have become disarranged. The jury returned a verdict of "Death by misadventure," and recommended that all poisonous subcutaneous injections should be given under the superintendence of the resident medical officers, and the medical officers should exercise such supervision as to render it impossible for the nurse to obtain or administer any injection other than that prescribed for the patient.—*Maryland Medical Journal.*

The nausea accompanying the pregnant state has been the target at which has been aimed nearly every drug in our armamentarium. If acidity of the stomach exist (as shown by the reaction of the ejecta, "heart-burn," etc.), try two or three drops of the tincture of nux vomica before each meal. This is often efficient when the commonly recommended remedies have failed. It is sometimes advantageously combined with a grain or two of powdered ipecac.—*Louisville Med. Journal.*

Northwestern Lancet.

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THE PROPOSED MEDICAL EXPERT ACT.

The Committee on Legislation appointed at the last meeting of the Minnesota State Medical Society, acting under the directions of that meeting, has prepared two bills for presentation to the legislature at its present session; one of these bills deals with the matter of medical expert testimony; the other relates to the substitution of medical examiners for coroners. There was also referred to the Committee a bill prepared by a committee representing the faculties of the two medical colleges in the state, and providing that candidates for matriculation in the medical schools must qualify before the state Superintendent of Instruction, either by the presentation of a diploma showing the necessary preliminary education, or by passing an examination the requirements of which are fixed by the bill. The Committee on Legislation will give its assistance to the Committee of the Facult in support of this measure and calls upon the medical profession throughout the state to lend its aid to the passage of all three of these important acts.

The text of the bill relating to medical experts is as follows:

A BILL FOR AN ACT PROVIDING FOR THE APPOINTMENT AND EXAMINATION OF MEDICAL EXPERT WITNESSES IN CERTAIN CASES AND REGULATING THEIR COMPENSATION.

Be it enacted by the Legislature of the State of Minnesota:

Section 1. That upon the trial of all indictments in the District Court for offenses punishable by death or imprisonment in the penitentiary, whenever it is made to appear to the court that the trial of the issues will probably require the introduction of medical expert testimony, the court shall, upon the application of either party, appoint such number of experts as the court shall deem proper, not less than three nor more than five. Such experts shall in all cases be persons skilled in medical or surgical science, or in both, and shall be duly admitted to practise medicine in the State of Minnesota; provided, that in special and extraordinary cases, the court may in its discretion appoint as such experts persons resident in other states and duly qualified and admitted to practise medicine in the state where they reside. The party applying to the court for the appointment of such experts shall set forth the nature of the matters upon which the opinions of such experts will probably be required. The court or judge thereof shall provisionally prepare a list of names of such persons as it may have reason to deem properly qualified, and shall cause the said persons to be subpœnaed to appear at such time as the court or judge may order, due notice of such time and place to be given the opposing party. Upon the appearance of such persons they shall be sworn and examined by the court and by the counsel if they shall desire, touching their qualifications as such experts; and if the court on such examination shall be satisfied that such persons are properly qualified and are free from any actual or implied bias, such persons shall then be appointed by order of the court as a commission of experts in said action. If any of the persons so named provisionally shall not, on such examination, be found to possess the proper qualifications, or not to be free from actual or implied bias, the court shall name other persons, who in like manner shall be examined, until a sufficient number shall be accepted by the court.

Section 2. Each witness so appointed shall, before testifying, make the following oath or affirmation, viz:

"I do solemnly swear (or affirm) that I have not suffered any person to talk to or communicate with me nor have I talked to or communicated with any person, except the other expert witnesses appointed by the court in this action, touching said action or any of the matters or things concerning which I have been summoned to testify herein, or the nature of my opinions thereon, nor the opinions of any other expert witness appointed by the court herein, nor have I knowingly given to any person other than said experts any information or intimation as to the nature of the opinion or probable testimony of either of said experts; and in case I have made or participated in any scientific experiment or physical or mental examination preparatory to testifying herein, that I have not knowingly given to any person other than said experts any information or intimation as to the results of such experiment or examination, and if in such experiment or examination I have required the assistance of any other person, that no person having any interest in or connection with this action, directly or indirectly, has in any manner participated therein, to the best of my knowledge and belief; and that the testimony which I shall give in this action shall be the whole truth and nothing but the truth. So help me God."

Section 3. Each expert witness so appointed in criminal cases shall receive such compensation as the court in its order of appointment shall prescribe, which shall not be less than ten dollars nor more than one hundred dollars per diem while in actual attendance upon such trial, and mileage the same as is allowed to other witnesses, which shall be paid by the county.

Section 4. The expert witnesses appointed under this act may be examined and cross-examined upon the trial in the same manner and subject to the same rules as other expert witnesses; but if upon preliminary cross-examination at the trial with reference to his qualifications, it shall appear that any such witness has, either before or after his appointment, expressed an opinion as to the merits of said action, or as to the matters concerning said action, or as to the matters concerning which he proposes to testify, to any person other than the other expert witnesses appointed by the court in such action, or has knowingly given to any person other than said experts any information or intimation as to the nature of his opinion or testimony or as to the opinion or testimony of either of such experts, or as to the results of any scientific experiment or examination which he or either of such experts may have made or participated in to prepare himself for testifying in said action, his appointment shall forthwith be revoked, and he shall be allowed no compensation as an expert in said action; provided, that he shall not thereby be prevented from testifying as a witness.

Section 5. Whenever the prosecuting attorney shall deem it necessary to introduce the testimony of medical expert witnesses upon the trial of any indictment in the District Court for an offense punishable by death or inprisonment in the penitentiary, it shall be his duty to apply to the court or a judge thereof under section one of this act for the appointment of a commission of experts, and such application may be made at any time after the finding of the indictment and before the close of the evidence upon the trial.

Section 6. In any civil action pending in the District Court, either party may apply to the court or a judge thereof for the appointment of a commission of medical experts, at any time after the issues are joined and before the trial; and if it appear to the court that medical expert testimony will probably be necessary and material under the issues joined, the court or judge may, upon being informed of the nature of the matters upon which it is desirable to have the opinions of such experts, appoint such number of persons not less than three nor more than five, having the qualifications prescribed in section one of this act. The manner of the selection and appointment of such witnesses is governed by section one of this act. Each of said witnesses shall, before testifying, make the oath or affirmation prescribed by section two hereof.

Section 7. The party applying for the appointment of such experts in civil actions shall give security to be approved by the court or judge for the payment of their fees and mileage. Each expert witness shall receive such compensation as the court in its order of appointment shall prescribe, which shall not be less than ten dollars nor more than one hundred dollars per diem while in actual attendance upon the trial, and mileage the same as is allowed to other witnesses, which fees and mileage shall be taxed as part of the costs; provided, that in civil actions in which medical expert witnesses are appointed under this act, the court shall not allow expert fees to any witness other than those so appointed.

Section 8. The party applying for the appointment of expert witnesses under this act, or calling them for examination after such appointment,shall not be concluded by the testimony of such witnesses, but may rebut the same by counter testimony. This act shall not be construed to limit or affect the right of either party to summon other expert witnesses.

Section 9. All acts and parts of acts inconsistent herewith are hereby repealed.

Section 10. This act shall take effect and be in force from and after its passage.

It must be remembered in passing judgment upon this proposed legislation that it is pioneer work, that is if it is adopted it will be the first statute of its kind in this country. The absence of any guide in the drawing up of the bill has put the

Committee at a great disadvantage, and it could not have brought the measure into its present shape but for the assistance of an attorney skilled in these matters. That there are defects in the bill will no doubt be proved by experience, but if once a measure of this kind shall be adopted the entering wedge will have been driven and it will be easy to make such amendments and alterations in the proposed law as the future shall show to be necessary.

It will be noticed that the bill makes it the duty of the prosecuting attorney in all criminal cases where medical testimony is to be called to apply for the appointment by the court of a committee of experts; in civil cases the provision is made only that either party to the action *may* apply for the commission. This was the best that could be done although much less than is to be desired. To try to force the commission of experts upon all civil cases involving expert medical testimony would very likely ruin the whole thing, and even if it were provided that experts should be appointed by the court in all the civil cases coming under the law, no way could be found of having the experts called to give their testimony, unless this were done voluntarily by one or the other party to the action. The great stumbling block in the way of the reform of medical expert testimony is that it is impossible under the constitution of the state to prevent the calling of any number of experts by either side of the case whether the medical commission has been appointed or not.

In spite of obstacles and defects, it is believed that the bill will bring about an improvement in medical expert testimony and that the matter can be farther improved by future legislation if only the ball can be once set in motion. It is a matter in which the honor and dignity of the profession are deeply concerned, and it is asked that each and every physician bestir himself to aid the passage of the bill. Let every medical man in the state make it a point to speak or write to the senator and representative from his district urging the passage of this bill. The pressure brought about in this way would be of enormous value and would undoubtedly carry the measure through with ease.

In the next issue of this journal will be taken up the other pieces of proposed legislation referred to above, lack of space forbidding their further consideration at this time, although their importance is unquestioned.

CORRESPONDENCE.

THE DECLINE IN MEDICAL PRACTICE.

Editor of NORTHWESTERN LANCET:

SIR: I was much impressed by your editorial in a recent issue giving some of the causes acting as factors in the falling off in general practitioners' work since 1893. At the same time it occurred to me that one of the chief causes was overlooked. I refer to the too common custom of some of our confréres prescribing pharmaceuticals in original packages. You have, no doubt, noticed in many of the advertisements how carefully they recommend you to prescribe in original packages to insure the genuine article. Many of them advertise largely in the newspapers, and in the medical journals they place the injunction on the physician to advertise for them. To illustrate: Dr. A. prescribes for Mr. B. some well advertised kidney, liver, digestive or other remedy in the original package. Mr. B. takes the medicine, and when his bottle is empty, if he feels a little better he gives Dr. A. the go by, goes to the druggist and gets another bottle. Again, if at some future time he feels some similar symptoms, does he go to Dr. A.? Not by a long shot; he goes to the druggist, who can dispense it just as well without a prescription, and gets another bottle, and Dr. A. loses his fee. But the trouble does not stop here. Mr. B. has a friend, Mr. C., to whom he narrates his experience, and Mr. C., instead of consulting Dr. A. or any other doctor, goes and gets his bottle, often with similar results, to be transmitted to Mr. D.; thus it goes on *ad infinitum.* Dr. A., unthinkingly, plays into the hands of the manufacturer, not only robbing himself but other doctors around him.

Remedy: If we must prescribe pharmaceutical productions, let us prescribe them in broken packages, add a little coloring matter, such as compound tincture of cardamon, or some simple flavoring extract, in itself harmless, yet changing the appearance and taste, have it dispensed in a regular prescription bottle with our own label and directions, and this trouble will cease. I do not say that many of the well advertised pharmaceutical preparations are not worthy of our confidence, and possibly more elegantly and palatably prepared than we could do in a small way, but charity begins at home, and when we find a crying evil against our worthy craft we should use those means in our power to remove it. J. T. MOORE.

Minneapolis.

It is said that the Russian peasants treat rheumatism by poultices of ants, the formic acid in these inseets being the therapeutic agent.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. BEARD, M. D., SECRETARY.

STATED MEETING, JANUARY 6, 1896, at the West Hotel, Minneapolis; The President, Dr. W. A. JONES, in the Chair.

Dr. FRANK ALLPORT, of Minneapolis, presented two patients from whom he had removed an eyeball, which he had replaced with a Mules' globe. He gave a clinical report of these operations and illustrated the results upon the patients.

See page 46.

A paper was read by Dr. H. M. BRACKEN, of Minneapolis, entitled

THE PRACTICAL APPLICATION OF THE SERUM DIAGNOSIS OF TYPHOID FEVER.

Dr. GREENE: I was not fortunate enough to hear more than the latter part of Dr. BRACKEN'S paper. I have used the serum test of Widal for several months past with excellent results. I think the method we have used in St. Paul has been rather different from that which the doctor has used. We have employed the flat method of mounting instead of the hanging drop method. I personally believe that the test will be found to be a pathognomonic one, for it certainly would seem that if you find a serum reaction present in 199 out of 200 cases, or even 99 out of 100, in a disease as difficult to diagnose as typhoid fever, that where you fail to find the reaction you are more apt to have made an error in diagnosis based on clinical signs. In the cases described by Dr. BRACKEN as failing to show the reaction until a late date, I cannot help feeling, personally, that the failure may have been due to the fact that the blood was collected upon a sheet of ordinary paper. I saw one or two on similar sheets, and noticed that the drop of blood had been very largely absorbed. Now, as the serum is the active constituent and as that had been mostly taken up by the paper, reaction may have been delayed for that reason. It would seem to me we ought to use a non-absorbent material, something like a cover glass or a microscope slide or a bit of celluloid, some material that would retain the blood in the dry state with this toxine or antitoxine intact. There has been up to this time no report unfavorable to the serum test. Only from Johns Hopkins have I learned that they had failed to find it in any case. I believe that this one test is worth all the other symptoms of typhoid fever put together.

Dr. WESBROOK: I am afraid my opinion will not be as valuable as Dr. GREENE'S, especially concerning the clinical aspect of the matter, since I may be supposed to be looking at it from a position of prejudice, being not a clinician but a laboratory man. So far as the value of the practical work is concerned, I can scarcely endorse everything Dr. GREENE has said. The method, as yet, is rough, and requires considerable understanding, and is just now going through the stage of proving in the same way everything else must go to be of permanent value. In the experiments referred to in Dr. BRACKEN'S paper, the objection raised by Dr. GREENE to the collection of the blood specimens on paper would be well taken but for these facts. All positive results up to the time when in the two particular cases cited no reaction appeared, were obtained from blood collected on a particular kind of card. The negative results in these two cases were obtained from the blood collected on the same kind of card as used throughout. When positive results were obtained, for the first time, the paper used was by accident of another and a more absorbent kind. In the light of these facts I do not think that in weighing our results it will be necessary to consider the matter of the kind of paper used; although, as Dr. GREENE says, it is undoubtedly a possible source of error, and as such should be recognized. We should use something like clean glass or some smooth non-absorbent material. In addition to the point brought forward that the absorbent qualities of the paper may be a source of error, another matter suggests itself as being possibly of importance, viz: the possible presence in the paper of certain chemicals which, having some harmful or agglutinating action upon the bacteria themselves, might be misleading. As to absorbent paper soaking up the serum from the blood, this would be of no importance, since whatever fluids soaked into the paper would be afterwards soaked out by the distilled water or salt solution used, unless the material had formed an insoluble compound with the paper. I think that we are justified in considering this as a very important method of diagnosis, but we must not be too sanguine about it. We must simply report what we find in the cases examined, and regard it as yet in the experimental stage. We are only making up our minds about it at the present time, and it would seem better not to predict too much. The dry method has many conspicuous advantages over the wet method, and it appears as if it would entirely supersede it. Regarding the question of the appearance of the reaction about the fourth day, we cannot do more than theorize. We do not know why the reaction takes place. Apparently the substance is in the nature of an antitoxine. Whether it be antitoxine or toxine the matter of the date of the appearance of the reaction does not seem to be likely to be necessarily fixed. It seems to me that where we have two factors at work, the manufacture of the poisons by the bacteria, and the manufacture of antitoxine by the body, and that either one of these may predominate in any given case at the beginning of the disease, so that, accepting either explanation of the cause of the reaction, we might fail to get it in any special period of the case. As to just when the reaction, then, is to be observed we must wait and see, and merely collect our data at the end of our observations. There is much to be done and the work is full of suggestion, so that by next year we should expect much more light on the matter.

I am just in receipt of a communication from Dr. Wyatt Johnston in which he points out an important matter in the technique. He says that the psuedo-reaction is made impossible by the use, not of day to day cultures of typhoid, thus intensified in virulence and mobility, but by old cultures which have been sown in broth some few hours before the experiment. This psuedo-reaction is a grouping or agglutination of the typhoid bacilli which follows upon their introduction into ordinary serum, which is due, according to Johnston, to an excess of the globulins. This had been observed in our work by Dr. Wilson and, in some cases, the psuedo-reaction may be done away with by diluting the mixture of control blood and typhoid bacilli under observation.

The amount of this hypothetical substance (antitoxine ?) present in the blood of a typhoid patient is usually far in excess of the amount necessary to cause the reaction, but it seems conceivable to suppose that a point may be reached where either it or the bacteria may preponderate. An obvious improvement in the method would be to find a way of measuring the exact amount of serum which we are using, as well as the approximate number of bacteria, in order to make comparative experiments. The bacteria should be grown always for the same length of time and under the same conditions. Reaction is usually so marked that we can permit of certain inaccuracies; the more accurate the method, however, the better for us. In these experiments reported tonight Dr. WILSON has done the chief work, and he doubtless will be able to tell you many of the things which I have left unsaid.

Dr. WILSON: I do not know that I can add anything to what has been said, unless in the way of technique. The first case which I looked at I diagnosed in about a minute, but now it takes several hours and I feel the need of a little more care with each new case. The difficulty in getting the exact amounts of materials is the greatest one. In the wet blood method it has been proposed to use a serum diluted 16 to 1 and to expose for thirty minutes. This has apparently given very accurate results. It would seem that we could make a similar test by collecting sufficient serum which, when dry, could be soaked up with normal salt solution in definite proportions. I think this would be as accurate as the wet blood method and permit of the collection of specimens in a comparatively aseptic manner.

I do not think that, under the present conditions, it would be at all well to make this a pathognomonic sign, for, as Dr. WESBROOK has said, there is a possibility of getting a similar clumping with normal blood. I feel sure that I have gotten, in flat preparations, quite a fair grouping in my own blood used in very dilute form. The whole test requires accurate proportional work, and must always remain a matter of judgment.

Dr. TALBOT JONES: I would like to inquire of Prof. WESBROOK whether or not the agglutination proper of the serum has ever been observed in the colon bacillus infection in the same way as in typhoid fever?

Dr. SWEETSER: I would like to ask the author of the paper whether a positive diagnosis has been made and confirmed by autopsy, or what was the clinical significance of the different cases?

Dr. BELL: I wish to inquire how early this test may be relied upon; from what event the count of time is made; what particular symptoms indicate typhoid fever; is it the chill, is it the temperature, or what is it?

Dr. BRACKEN: I will take Dr. BELL's question first. Of course, clinically, we simply take a group of symptoms and infer that we have typhoid fever. The matter of determining the exact day of beginning is difficult with typhoid. In only one case have I been at all sure of the first day, and that was in the case of a child six years old who had been apparently well. There was already a case of typhoid in the house. This child was seen on the second day of the apparent illness. There was no reaction then, nor on the fourth day. As for this date of the appearance of the reaction, the general reports say about the fourth day. We had only one case, in the series reported, which gave the reaction on the fourth day, and this case gave a marked reaction throughout its entire course. Another, I think, gave the reaction on the seventh day. It is from the fourth to the seventh day that we look for it. If there is clinical reason to suspect typhoid fever, we are not likely to use Widal's test. We should employ it simply for the purpose of strengthening the diagnosis.

In answer to DR. SWEETSER's question, let me say that none of the patients under observation died. I have seen no autopsies following the use of this test. The only case mentioned by Dr. Wyatt Johnson as failing to give the reaction recovered and hence there was no autopsy.

Dr. GREENE has spoken of the paper used in collecting the blood and suggested that we should use cover glasses or slides. Dr. WESBROOK spoke of the fact that these should be clean. It is clinically more convenient to take what comes to hand. If we should comply with all the requirements mentioned, we will often not use the test. I used a prescription card, a stiff card, for collecting the blood and the blood dried before I rolled it up to carry away. A rough method collecting is often more convenient than one which requires a great deal of care and precision.

Dr. WESBROOK: In reply to Dr. Jones' question as to whether or not the agglutination proper of the bacteria by the serum has ever been observed in the colon bacillus infection as in typhoid fever, I may say that experimentally observations have been made upon animals which have been made immune to the colon bacillus, the bacillus typhi and vibrio choleræ Asiaticæ, and their blood has been proven to be active only against the microörganism with which they were immunized.

The whole thing hinges upon an experiment two or three years ago in testing for cholera vibrio. Pfeiffer pointed out that if the animal was inoculated with cholera that his serum inoculated into another animal would protect that animal against cholera and cholera only. There we had the known serum of a known animal protected against a known microörganism. We could in this way identify an unknown microörganism. Now we work the other way. We have a known microörganism which we keep going from month to month. We use this known microörganism to diagnose an unknown serum. It is a new application of an old fact. In that case the reaction took place in the body of the animal, and now it occurs in the microscopic specimen.

Dr. A. W. ABBOTT, of Minneapolis, contributed

A NOTE UPON THE APPROXIMATE ESTIMATE OF UREA.

See page 47.

Dr. J. E. MOORE, of Minneapolis, read a paper upon

OSTEOMYELITIS.

See page 41.

Dr. DUNN: There are two or three points in the paper that I look at in a little different light from the author's.

One is as to the source of the infection. I got the idea from the doctor's paper that he believed there was generally some wound, either apparent or non-apparent, to afford the infection.

Dr. MOORE: You misunderstood me there doctor.

Dr. DUNN: The main point, however, that I wished to discuss was the necessity for always opening these bones. I believe that a prompt operation is unquestionably very important. In bone, as in other parts, a very extensive destruction often takes place very quickly. At other times there is very little destruction even when left to nature's course.

One thing more, if I have understood correctly, and that is, among the different causes, that a germ was necessarily present in many of the relapsing cases, and that the patient carries these germs for many years. The patient will be free from the disease sometimes as long as from 10 to 15 years, and relapse. These cases are generally accounted for upon the idea that some disease germs have remained in the bone during these years, and with predisposing causes when the condition of the vitality is correct, they spring up, and we may again have an acute attack.

Dr. J. CLARK STEWART, of Minneapolis, said: I would like to criticise the title of this paper. I would prefer to call it acute diffuse suppurative osteomyelitis, because osteomyelitis covers all inflammations of the bone marrow, and the term acute diffuse suppurative osteomyelitis, while longer, is more definite.

Another point of criticism is in regard to the differential diagnosis from rheumatism. The doctor says there is only one of the joints as a rule involved by the associated synovitis. I think that in the multiple suppurative myelitis of the epiphyses in children we often have a number of joints involved. Coming under my observation was one case treated by so good a diagnostician as Prof. Abraham Jacobi, for rheumatism. It turned out to be a case of multiple osteomyelitis of the epiphyses occurring in a child about 11 years old. The case was almost an exact counterpart of inflammatory rheumatism up to the time pus was discovered in several joints. And all those joints afterwards showed sequestra. In regard to preëxisting pus forming conditions, I believe that in every case of acute diffuse suppurative osteomyelitis you have had previous recent suppuration, and experimental suppurative osteomyelitis in animals would almost prove, to my mind, that the occurrence of this inflammation could not take place without a special source of pyogenic infection, because the animal which gets a dose of pyogenic germs in his blood and then has one of his bones injured will get the disease, while an animal thus injured without the pyogenic germ injection will not get it. This seems to me to throw out accidental auto-infection as a probable source of acute suppurative osteomyelitis. It is certain that a large number of the cases do follow some suppurative injury. It may be a very slight one.

Those cases which apparently come from exposure and cold are difficult to explain upon this basis. It is not impossible that they are from this same source, but that the slight suppurative lesson has passed unnoticed.

There was a case treated in one of our hospitals lately for typhoid fever for about four weeks, having typical typhoid symptoms, these coming on eight or ten days after a wound in the foot which had not healed entirely. Finally at the end of four weeks there was fluctuation; and a large abscess appeared which, when opened, led to an iliac sequestrum. That case certainly had a very good clinical typhoid history. This might illustrate the value of the typhoid serum test. If that had been tried this patient's diagnosis might have been made earlier.

Dr. DUNN: The real point in my criticism was that I thought the picture was overdrawn in certain directions, but this is easily explained if the author takes one variety of osteomyelitis.

Dr. A. W. ABBOTT: I want to ask a question. I want to ask of Dr. STEWART how it happens, if his position is correct, that so very many women have prolonged suppuration, and yet, among these very women, we very seldom see suppuration of this kind?

Dr. STEWART: We have to have, first, the presence of the microbe; and then either the injury or the condition which favors the lodgment of it in the bone marrow. If a fracture occurs, then there is a better chance in these women for the development of this disease than there would be otherwise.

Dr. W. A. HALL: It would seem to me that we must have an antecedent suppurative condition, and that it would be advisable to discard the term osteomyelitis, for that is simply one of the manifestations of a pyæmia.

Dr. C. H. HUNTER: There is one phase of the question which was called out by a case that came into my office two or three weeks ago. It shows that either the title of the paper or the substance of it would need to be somewhat revised.

The case was something like this: A child eight years old, a little girl, was seized with a chill; then was lame with pain in the thigh at the lower end just above the knee; went to bed, remained there a long time, some two months. The case was treated by a local druggist for rheumatism. Finally, the child recovered without suppuration, but with some deformity; that is, the child is now knock-kneed in the left knee. The lower end of the femur is thickened a great deal, especially on its inner aspect. It is not at all tender; there is no pain at all about the limb. There seems to have been a resolution or healing and the formation of the new tissue; that is, a constructive and not a destructive inflammation. That is I suppose a germ that does not cause suppurative destruction of the parts. With the X-rays one could see that that there was a roughened nodular thickened aspect of the inner part of the femur for some three or four inches, the shadow being much more marked in this bone than in its fellow.

Dr. DUNN saw the case. It was one that made considerable impression upon me. Not all cases that begin with symptoms of suppurative osteomyelitis need end in this way. Suffering would be greatly shortened by radical treatment, and this deformity would have been saved. But at the present stage with this patient there is nothing to be gained by operation. It does not look as though there were pus in the bone, nor does the X-ray show abscess.

Dr. T. S. ROBERTS: Infantile scurvy sometimes presents a condition simulating osteomyelitis, swelling, intense pain, great sensitiveness, and constant temperature are all present.

One such case came to my notice this year. There was a history of a fall, apparently an injury to the affected limb. The child was examined under an anæsthetic, and it was regarded as a case of beginning osteomyelitis. A little later the symptoms showed it to be scurvy; although it was a fat and well fed child, the introduction of a diet suitable for a patient affected with scurvy led to complete recovery within a week.

Dr. MOORE in closing the discussion said: Dr. STUART'S criticism upon the title of the paper is a point worth taking, but my intentions were good. I wanted to familiarize this term with everybody. The rank and file know very little about it. We cannot use one term that is short and concise and means the whole thing any too often. It can be changed to acute diffuse suppurative osteomyelitis if you are talking only to surgeons. I only took one corner of the subject, so I just touched up a few little points that had been of great interest to me.

In the matter of diffuse synovitis, in connection with osteomyelitis, that, of course, occurs; but I was speaking of the rule and not the exception. I have known of at least one hundred cases in which osteomyelitis has been called rheumatism, when there was swelling of a number of the different joints. These cases I have never seen in Minnesota. I have seen such a thing only once in my whole experience, so that I did not think it best to mention the exception.

In Dr. HUNTER'S case, he evidently had an epiphysitis, and while there are those who believe and teach that we do have cases of epiphysitis in childhood, non-suppurative in character and ending in resolution, I question its truth. I believe that this case was epiphysitis and suppurative, one of those mild cases; and it is not an uncommon occurrence to have a hypertrophy of the epiphyses with inflammation of this kind. I would not be surprised if the doctor would be called to see this patient again and he should advise operation, and that we would find a small abscess there.

I was glad to have Dr. ROBERTS mention the case of scorbutus. These cases are more common than any of us know. I have had several cases in the last few years. Up to five years ago I did not believe we had any. The same with rickets. I find now that we have a great number that I had overlooked formerly. Their history is very like that of osteomyelitis.

RAMSEY COUNTY MEDICAL SOCIETY.

CHARLES R. BALL, M. D., SECRETARY.

REGULAR MEETING, SEPTEMBER 28, 1896. The President, A. J. GILLETTE, M. D., in the Chair.

Dr. H. J. O'BRIEN read a paper entitled

INTRABRONCHIAL MEDICATION.

See page —.

Dr. LONGSTREET TAYLOR said that he had been fortunate or unfortunate enough to have been the patient, and to have had Dr. Muir to demonstrate intrabronchial medication upon him. Had been coughing constantly and severely with an acute bronchitis, which seemed about to become chronic, for three weeks, with some daily rise of temperature. After one treatment the cough subsided and he was soon entirely well. It is in just such cases that this method of treatment is indicated, and where it will do the most good. It is palliative to any cough, if it contains menthol, and curative in simple non-tubercular bronchitis. In consumption, however, this action is at times detrimental, because it is best for the patient to keep on coughing and raising, in order to prevent the toxines developing at the seat of extensive ulcerations from being absorbed. In such cases the treatment will be followed by increase of fever and malaise, even if the cough itself is lessened.

Dr. ABBOTT: At first this treatment did not seem very satisfactory to me. We all know how much irritation a particle of food or a small amount of liquid will cause when it accidentally gets into the larynx. It seemed to me that more or less of the same kind of irritation would be caused by intrabronchial medication. I was much surprised at the tolerance shown by patients with this medication, and also at the amount of the injection which could be used. In acute forms of bronchitis we use some soothing preparations, but in chronic bronchitis stronger preparations are indicated, such as menthol and iodine. In tuberculosis the cough should not be stopped with opiates, because of the reabsorption of poisonous material and the stopping of the air passages by sputum. In tuberculosis much of the cough is due to the accompanying bronchitis. Any medication that will help the bronchitis, and thus relieve cough, will be of benefit. I believe the stoppage of the cough by the menthol solution is beneficial. One of my cases was a man, twenty years ago, who had empyema. As a result of this the chest on this side is flattened, there is very little expansion and no respiratory sounds. All the evidence of a cavity exists next to the bronchus on the affected side, which is bronchiectatic and not tubercular. The cough has been very severe and the expectoration profuse and fetid. A good result was obtained in the treatment of this case by intrabronchial medication. After an intrabronchial injection he lies on the affected side, and the medicine goes by gravity to the cavity. The cough and expectoration are much diminished and the fetid matter has entirely disappeared.

Dr. DONNELLY: My experience with this treatment has only been of a short duration; but I can say that, so far as I have tried it, I find it very satisfactory. In cases of acute, subacute and chronic bronchitis, especially those where the cough at night is very troublesome, I find that it seems to act very well. I recall one case where the patient coughed very much every night. Last Saturday I gave an injection and the patient tells me this morning (Monday) that Saturday night he slept all night without cough, but Sunday night he coughed all night. I have had no experience in the cough of tuberculosis as yet. I think Dr. O'BRIEN has not fully brought out the point that the applications or injections are not so easy to make as one would imagine. It requires some little practice to do it successfully. I think, upon the whole, it is an excellent treatment.

Dr. H. LONGSTREET TAYLOR said, in answer to certain objections to his statements in regard to the danger in some tubercular cases from the sedative action of these injections, that while not acting exactly as opium does, and its bad effects have long been recognized in consumption, yet the injections, too, reduced the irritability of the mucous membrane and the ultimate action was the same. The warning was given from two cases that had come under his observation, in which he had noted these results. He was in the habit of putting the patient immediately into the pneumatic cabinet, and then, exhausting the air around the patient, of giving short, deep inspirations of air from the outside through the breathing tube. This outside air, rushing in to fill the partial vacuum in the cabinet, and guided by the breathing tube to the lungs, would drive the medicine to the finer bronchial tubes and thus distribute it throughout the lungs.

There followed a symposium upon typhoid fever, in which the following papers were read:

ITS HISTORY,

by KNOX BACON, M. D.

See page 48.

SYMPTOMS AND GENERAL DESCRIPTION,

by J. F. CHRISTISON, M. D.

PROPHYLAXIS,

by A. W. DUNNING, M. D.

See page 49.

TREATMENT,

by L. C. BACON, M. D.

See page 44.

Dr. O'Brien: I consider this an excellent symposium. The subject of typhoid fever is so exhaustive that I mean to restrict my remarks to the treatment. No two men treat the disease exactly alike, and Dr. Bacon's treatment, I should say, is excellent, although I do not treat the disease in many ways as he does. I do not use intestinal antiseptics, as I have failed time and again to note any benefit with this method in my hands or in others. I rarely give whiskey or alcoholic stimulants in any form; but I use strychnia, digitalin, nitroglycerin, as they seem indicated, and when possible, by the hypodermic method. I have not seen very many cases complicated by intestinal hemorrhage, but where I have met this complication I have treated it with cold to the abdomen, opium and nitrate of silver by the mouth. I use enemata almost exclusively for evacuation of the bowels. For the relief of headache I commonly use an ice cap. I believe an ice coil applied to the abdomen to have some control over the temperature and find it grateful to the patient.

Dr. Hawkins: I feel that this discussion is a good one, and timely. At the present time there is a great deal of typhoid in my section of the city. In regard to the symptoms I would take some exceptions to Dr. Christison's statements. In my experience rose spots do not occur in half of my cases. Nose bleed rarely occurs. I think not more often than intestinal hemorrhage. I regard nose bleed as a bad symptom. In a great many cases I do not get the iliac gurgle. The tongue seems to me to be characteristic: a red border and tip, with coated body. Headache in this region is a good guide, because we have no malaria. As regards treatment, the doctor tells us we should give our patients two or three quarts of milk in twenty-four hours. I think that amount to be twice as much as any adult can take without causing irritation. If you will give a quart in twenty-four hours your patient will do better and not have so much fever. As to antiseptics, the doctor has recommended the only one that has ever seemed to be of benefit to me. With typanites lately I have given a drachm of powdered charcoal daily with good results. I have great faith in minute doses of calomel. It stimulates the alimentary tract, and is a good antiseptic. As to the baths and cold water, they can be carried too far. In using cold applications I believe that the shock is a real benefit to the patient. I sometimes give mutton and beef if properly prepared, and can say that I have yet to be sorry for it.

Dr. E. Freeman Walsh: I wish to call attention to two or three points which have not been brought out: The great index in typhoid fever is the pulse. As typhoid fever is a disease characterized by high temperature and a comparatively slow pulse, if the pulse does not go over 100 I consider the prognosis good regardless of the temperature, which I pay no attention to unless it causes restlessness, when I reduce it by means of the wet pack; or, if very high, and the wet pack does not succeed, by the Kibbe cot. Antipyretics should not be given, as they depress the heart and often irritate the stomach. A thing of very great importance in this, as in any disease where confinement in bed for some time is necessary, is changing the position of the patient. Do not allow him to lie on his back at all, and change him from side to side at least every three hours. A large percentage of the post mortems on typhoid fever patients which I have seen died of hypostatic pneumonia. By changing our patients' position every three hours we eliminate this danger. In regard to treatment. Food and slight stimulation. Milk or liquid beef peptonoids I have found the best, given every three hours. Stimulate with strychnia, about one-fortieth, three or four times in twenty-four hours. No solid food should be given until the temperature has been normal for ten days. I have seen relapses from taking solid food eight and nine days after the temperature was normal.

Dr. Abbott: I desire to say a word in regard to the disinfection of the stools. As the nurse usually accomplishes this the results are, I believe, negative. The fæces should be thinned and mixed thoroughly so that they will come in contact with the disinfectant. As to diet, I believe with Dr. Hawkins that we feed our patients too much. A glass of milk has about as much nourishment as a mutton chop, and we would not think of giving a patient a mutton chop every two hours, as we very frequently give milk. As to the use of stimulants, I give a great deal less than I used to give. I rely more on strychnia. As to the use of calomel, I give my patients a good, free calomel purge every other day for the first week. As to temperatures, I am not so much afraid of them. If unusually high I allow the patient to have a bath. As a routine treatment I employ baths if the patients enjoy them and feel better after them. Frequently I find that sick people do not want to be bathed. The process is irritating and tiresome to them, and they feel worse rather than better afterwards. In those cases I only use baths for purposes of cleanliness, unless the temperature becomes unusually high.

Dr. Andrew Henderson: The majority of us will regard the symptomatology outlined by Dr. Christison as being that of the typical case of typhoid as described in books, but it is the atypical case which we most frequently meet, and is sometimes very difficult to diagnose. I regard epistaxis as being a more difficult symptom than Dr. Hawkins would have us believe, and I do not believe with Dr. Christison that, at one time or another in the course of every case, diarrhœa is present. Dr. Abbott has brought out the point on prophylaxis which is most important, and I should protest against the slipshod way usually followed of sprinkling a bedpan with homœopathic doses of some disinfectant of uncertain strength. The essayist on treatment says: "When I have made up my mind that I have a case of typhoid I do so and so." I would like to ask what he does before he has made up his mind that it is typhoid? as I believe the future course of the disease depends mostly on the treatment instituted long before it is possible to arrive at a diagnosis.

Dr. A. L. WHITCOMB: I find epistaxis present in nine-tenths of my cases. I also usually find diarrhœa present. In regard to prophylaxis I have been in the habit of using the old-fashioned copperas water for disinfection, having the fæces passed into the copperas water, and allowing them to stand half an hour. I believe in giving plenty of coffee, and strong coffee. I heartily believe in the strychnia treatment. I generally give strychnia from the beginning.

Dr. CHARLES E. LEE: I would suggest to the members of this Society a trial of the Woodbridge treatment. Its rational character attracted my attention, and I gave it a trial, even though prejudiced against it by the seemingly extreme claims for its success. The main points advocated in it are: Its early adoption; the production of from three to five stools in every twenty-four hours; the frequent administration of an intestinal disinfectant, and the abundant drinking of water. The limit of my experience with this treatment has been nine cases, and the longest continuance of the disease was fifteen days. Sometimes the temperature fell to normal on the ninth or tenth day. To prevent ptyalism I frequently substituted saline cathartics for the compound calomel pellet. All I can say is that the treatment seems to be abortive of the disease.

Dr. C. L. GREENE: I wish to say a word in regard to diagnosis, and to protest against the apparent belief that the diagnosis of typhoid fever is easily made. We hear men talk of their early diagnosis as if they were dealing with a frank disease process. But I believe with Jacoud that no disease presents more opportunities for error. Most of my cases have been in public hospital practice, where we have superior facilities for accurate work and close observation, and case after case, sent in as probable typhoid, turns out to be something else. The book symptom complex and typical cases are not found in this region, and it should be understood that a diagnosis made at the end of seven to ten days from the onset of the fever is about all the best man can obtain. Discarding the long list of symptoms paraded by the older text-books, we may place our chief reliance upon (a) an insidious onset; (b) continuous fever; (c) rose spots present in 60 to 70 per cent., in my experience; (d) the diazo reaction; (e) an enlarged spleen; and (f) the disturbed pulse temperature ratio, *i. e.*, low pulse rate as compared to the temperature range. I do not believe we have typhoid without a diazo reaction, nor do I feel certain of my diagnosis when enlargement of the spleen is not demonstrated by palpation. One of the recent diagnostic tests of typhoid, and one which I have reason to believe may prove of considerable value, consists in noting the effect of typhoid blood upon the bacillus in pure culture, the mobility of the germs being markedly lessened and a tendency to grouping observed which is not present if the blood of patients suffering from other diseases be used. I am now working upon this test, and shall be able to present my results to the Society in a few months. As regards the Woodbridge treatment, mentioned by Dr. LEE, I can only say that, according to my recollection, the fine results reported by Dr. Woodbridge have been obtained in cases of extremely early diagnosis, too early to be exact, and many of us believe that a large number of the cases were not typhoid, and that the doctor was misled by his enthusiasm. I am open to conviction, however, and feel that Dr. LEE's endorsement should carry much weight.

Dr. L. C. BACON: I would like to emphasize several points. In a large percentage of our cases we are reasonably sure of our diagnosis early, and before we are prepared to make a positive statement as to conditions further, we have to differentiate from stercoræmia in this section of the country more than from any other trouble. In either case calomel is beneficial; therefore give it when you have conditions which resemble typhoid. So far as diet is concerned, I am most emphatically of the opinion that we should give patients only milk, and that in as large quantities as they can bear. Only the assimilation of nourishment in large quantities can counterbalance the wasting of the disease. The chief objection seems to be that undigested casein passes the bowels in large masses and may irritate. I believe this objection groundless. We have constant evidence, in most cases, of intestinal activity, coliky pains, borborygmus, etc., and must assume that any fæcal accumulations occur in the rectum, and do not pass the seat of disease in the condition in which they are evacuated. Dr. HENDERSON speaks of hemorrhage of the bowels following a cold bath. The bath might influence such a result if patient were placed in cold water, without measures being taken to keep up superficial circulation, thus causing congestion of deep veinous systems, particularly the portal veins, and rupture of weak ones may follow, but if the measures described in my paper are followed such a disaster need not be feared.

Congenital teeth are very rare, occurring probably not oftener than once in five thousand births. For some unexplained reason, probably superstition, they are often extracted at once; when hanging loose in the jaw removal is indicated, but otherwise they should be left alone. In one instance the extraction of congenital teeth was followed by fatal hemorrhage.

ORIGINAL ARTICLES.

OSTEOMYELITIS.*

By G. G. Eitel, M. D.

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Osteomyelitis is a bone affection to which the attention of the general practitioner and surgeon is frequently called. There are two recognized varieties, i. e., the acute suppurative, and the tubercular, the latter being of a chronic character. As time will not permit me to deal fully with the subject, I shall confine myself briefly to the former.

Osteomyelitis may be defined as an inflammation of the medulla or marrow in some part of the skeleton, occuring most frequently in the young, before the process of ossification is completed, and is generally characterized by the rapid formation of pus,which infiltrates the neighboring tissue and is liable to extend along the whole length of the bone. The inflammatory process extends, not only in a longitudinal direction, but also through the varying thicknesses of the surrounding osseous structure, reaching the surface of the bone and affecting the periosteum and other soft parts and neighboring joints, in succession.

Inflammation of the medulla and bone itself following compound fractures and amputations was fully recognized by the ancient surgeons as a *very* serious wound complication. But there are no accounts of bone diseases which correspond with what we now understand by acute suppurative osteomyelitis (where the disease does not follow an exposure of them edullary tissue), until early in the eighteenth century. This condition *has* until within a comparatively recent time been called idiopathic periostitis. Anyone who attended lectures and clinics in this country or in Great Britain as late as six or eight years ago, hardly heard the term osteomyelitis mentioned or its application made, unless in connection with complications following compound fractures, especially in gun shot injuries and amputations. All other suppurative bone diseases, necroses, even to the extent of the entire shaft of long bones were supposed to be due to what was called ideopathic periostitis, or traumatic periostitis, where some injury could be ascribed. It is painful to notice that even at this day there are teachers and authors, who enjoy more than national reputations who do not fully appreciate the etiology of this disease. Bowlby says in his excellent work on "Surgical Pathology," 1895 Edition: "Osteomyelitis *always* originates in a wound which exposes the cancellous tissue or medulla, such as an amputation wound or a compound fracture." Other similar misleading statements might be quoted.

Pasteur, in 1881, found in the pus from a case of osteomyelitis the microörganism commonly found in all *hot abscesses*. Many pathologists who were making investigations labored under the opinion for a long time that the disease was due to a specific microbe. However, through the labors of Kocher, Rosenback, Kraske, Krouse and a number of other eminent German pathologists, it was fully established that the disease is always due to microörganisms, but not to any one specific kind.

The staphylococcus pyogenes aureus, albus and citrus, and the streptococcus pyogenes are by far most responsible. The micrococcus lanceolatus and the bacillus of typhoid fever have also been found both in pure cultures and in conjunction with the better known pus microbes. Kraske, Courmont, Jaboulay and Ullmannby, experimenting on animals, found that by first injuring the bones subcutaneously and then injecting pure cultures of the well known pus microbes into the veins,that acute suppurative osteomyelitis could almost invariably be produced. The most diffuse suppuration was produced, as might be expected by the streptococcus pyogenes. When the disease is due to this microbe it seldom limits itself to one bone, but usually invades the adjacent joints and very often produces septicæmia and pyæmia, followed by death in a few days from the time of onset.

ETIOLOGY.

The cause of osteomyelitis may be divided into the predisposing and exciting.

During the growth of the skeleton, at the extremities of the bones, near the epiphyseal line, are imperfectly developed capillaries, and the blood vessels themselves in the medullary tissue are without proper walls, resembling very much the characteristic sinuses of sarcoma. These sinuses depend for their protection on the delicate, bony structure surrounding them, and they have not the elasticity of blood-vessels elsewhere. These conditions are unquestionably anatomical predisposing factors, which favor the localization of microörganisms, that may be floating in the blood stream at an opportune time, when the local resisting power is below par. The resisting power may be reduced by an injury such as a slight blow, a kick from a horse, or from a playmate, concussion from jumping or a fall. The injury may be so slight as hardly to be noticed by the afterwards sufferer, yet be sufficient to cause in the delicate tissue a bruising of the capillaries and blood vessels,thus producing an effusion of blood, causing a clot to form in the damaged tissue and in this way bring about a disturbance of the nutrition, and during this time the bacteria may find a suitable field for operation.

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* Read before the Minnesota Valley Medical Association, December 1, 1896.

Osteomyelitis not infrequently follows some protracted constitutional disease, as typhoid fever, pneumonia or one of the exanthemata, and it is in such cases where the microörganisms which *produced* the *constitutional disease* are often found in the pus, either alone or in conjunction with the other microbes. According to Senn and other observers, cold and wet, after fatigue, are great exciting causes. Senn says: "My own observations induce me to attribute to exposure to cold an important role as an exciting cause. I have repeatedly observed cases of osteomyelitis in boys, who, after active exercise, suddenly became chilled by bathing in cold water, or who after an exciting game of baseball, stretched themselves out on the cold ground to rest."

SYMPTOMS.

The disease process itself generally runs a very acute course, especially where it is due to the staphylococcus or streptococcus pyogenes, and in some cases presents a group of symptoms very grave and obscure in character, so much so, that the nature of the disease is frequently, unfortunately, not recognized at a period when the most good could be done for the patient. It is very often mistaken early in the course for acute articular rheumatism, typhoid fever, meningitis, or even one of the exanthematous diseases;especially is this true the first time it is encountered by the practitioner. This will be noticed from the following cases:

Case 1. Boy, age six years, who enjoyed the best of health until the 28th day of May 2, 1888, when he, while playing with a calf, received a kick on the right knee, a few days after which he was suddenly taken ill, and began to complain of a very severe pain below the knee; also had a severe chill. A careful examination was made, but no swelling could be noticed. Pressure over the outer side of the head of the tibia greatly increased his suffering.

The temperature was 104° F.,at times delirious, the tongue coated and dry. On the third day slight swelling appeared near the epiphyseal line on the outside of the leg. On the fourth day symptoms of pus beneath the periosteum were distinct, and the cause according to my judgment at that time was acute traumatic periostitis. A free incision was made down to the bone through the most prominent part of the swelling,and about a tablespoonful of pus evacuated, after which the suffering of the patient was greatly ameliorated, but he did not promptly get well, as quite a portion of the shaft of the tibia became necrotic. The patient passed out of my hands, was finally taken to a hospital and a sequestrotomy performed after which he made a good recovery.

Case 2. A boy, age eleven, whose general health had never been robust, suffered a protracted run of scarlet fever. About three weeks after the time of onset he had a severe chill,which was followed by a rise of temperature to 103° F. in the morning and 104 3·5° F. in the evening. There was great pain about two inches above the inferior articular surface of the left femur. The pain could be increased by pressure, although there was no perceptible swelling. The patient was delirious at times, especially in the afternoon and his tongue was thickly coated. After watching the patient for a few days with his new complaint, which very much resembled typhoid fever, I fully satisfied myself that I had another case of suppurative bone disease. So a free incision was made through the soft parts. Between the periosteum and bone a small quantity of pus was encountered. An opening into the medullary tissue of the femur, near the epiphyseal line was made with a chisel and a small abscess discovered. The pus was microscopically examined and the staphylococci found, but not in very great number. The abscess cavity was treated antiseptically and got well in about four weeks, without the loss of any more bone than that which was removed by means of the chisel.

Case 3. A young man twenty one years of age, who on the twelth day of June, 1890, presented himself at my office with the prodromal symptoms common to typhoid fever. Two days later, in the afternoon, I was called to see him, when he had a temperature of 103° F. This patient had almost a classical run of the typhoid fever, without any complications, until on the 28th night he suffered considerable pain near the junction of the costal cartilage of the 5th and 6th ribs on the right side, which he described as a "drilling pain." He also had several chills. These symptoms made me think of pneumonia, but on waiting another day considerable swelling made its appearance with fluctuation enough to indicate the presence of pus. An incision was made over each rib, and in under the periosteum was found about one ounce of pus. After the abscesses were freely opened, curetted and dressed as such wounds generally are, the alarming symptoms promptly abated. A slight discharge of pus continued for about two months, and three inches of the inner surfaces of the ribs became necrosed. The sequestra were removed, after which the abscesses promptly got well.

Case 4. Boy, age 17, very tall for his age, had never been sick, although he had not the appearance of one in the best of health. In the Autumn of 1892 he came down with typhoid fever. At the end of the third week of the course, while apparently doing well, he woke up one night and found himself uncovered and very cold. The following day he felt worse and the next night he had a very severe chill followed by pain in the right scapula, and the temperature which had been normal for some time rose to 103° F. No swelling could be made out for some days. Finally there appeared to be a general elevation of the scapula and a few days later an abscess pointed at the angle of the bone, which was freely opened and a copious discharge of pus took place. A microscopical examination of the pus was made and the staphylococci, but no typhoid bacilli, were found. No necrotic bone could be detected at this time. About four months later under the influence of chloroform a thorough exploration was made and a large sequestrum removed from the anterior ramus and inner plate of the scapula, after which the numerous sinuses which had formed around the shoulder slowly closed up. The function of the shoulder joint is considerably impaired.

Case 5. Male, age 44, family history good, never had rheumatism or syphilis. Came to my friend, Dr. C. A. Smith, of Camdon, early in May 1896, complaining of some boring pain deeply seated in the left tibia about three inches below the superior articular surface. The pain was greatly increased on pressure and worse at night. There was no redness or swelling. Temperature ranged between 99° F. and 101 ½° F. The patient was kept under close observation and finally became worse. Osteomyelitis was diagnosed and operated upon the first day of June. The soft parts and outer surface of the bone were perfectly healthy, but on opening the medullary cavity fully an ounce of pus was encountered as well as a number of small sequestra. On making a microscopical examination of the pus, staphylococci were found, but not in large numbers. The opening in the bone, which at first was only made about one inch in length by one half an inch in width, was extended to about six inches in length and the cavity thoroughly cleaned by means of a sharp spoon and irrigation. Then the cavity was packed with iodoform gauze, over which was placed sterilized gauze and then bandaged. The dressing was changed four times and on the 27th of June the defect in the bone was filled with decalcified bone chips and the edges of the integument denuded and brought together by cat-gut sutures, after which the usual outside dressing was applied, and the limb placed at rest in an elevated position. On removing the dressing ten days later, complete union of the skin was found and not the slightest suppuration had taken place. The patient made a perfect recovery.

RECURRENCE.

Persons who have suffered from osteomyelitis either during childhood or adolescence are predisposed to subsequent attacks at any time during life. This is supposed to be due to some of the mircroörganisms or their spores that may have been incapsulated in the cicatrix and somehow set free after a time to again exercise their pathogenic properties. The following case was selected as it will illustrate this form of the disease.

Case 6. Male, age 36, married, apparently a picture of health. Had all the diseases common to childhood, and at the age of five years an attack of acute suppurative osteomyelitis of the right os calcis and left tibia, from both of which he suffered for many years. Finally, about ten years after the seizure, a number of small spiculæ of bone were cast off, the suppurating wound of the os calcis closed and became apparently well. Also a sequestrum of six inches in length and about two-fifths of the circumference of the shaft of the tibia was exfoliated, and the defect quite well filled in, but left a round opening of about one eighth of an inch, which communicated with the medullary cavity, and continued to discharge a little pus. In the autumn of 1893, he worked quite hard threshing, went home late at night, "took cold" and was taken with a chill, followed by a severe, deep seated pain in the right heel, which, according to his own description, was of a boring nature. The next day he noticed a little swelling and very slight redness, but the pain increased steadily in spite of hot applications, which were promptly and properly made. On the afternoon of the fourth day, when I saw him, he had a temperature of 104° F., a heavily coated tongue, and was suffering great agony. There was redness extending over the greater portion of the inner surface of the heel, with some, but not very much swelling. The diagnosis of recurrent acute suppurative osteomyelitis was made. The patient was at once taken to the hospital for operation. A vertical incision of two inches was made on the inner side of the heel over the most prominent part of the swelling. The periosteum had been separated from the bone by about one-half ounce of pus, which continued freely to ooze from a number of foramina. The os calcis was opened with a chisel and mallet, and a cavity discovered involving fully two-thirds of the entire bone. The inner surface of the bone was removed to correspond with the size of the cavity. This defect was loosely packed with iodoform gauze and changed every other day until no more microörganisms were found in the discharge, after which the entire cavity was packed firmly with Senn's decalcified bone chips and the edges of the tegumentary tissue, including periosteum, brought into apposition with silk-worm gut. The internal two-thirds in length and about one-fifth the circumference of the shaft of the tibia was chiseled away, the medullary cavity thoroughly curetted with a Volkmann spoon, made aseptic in the same manner as that of the os calcis and about two weeks later also filled with bone chips and closed. In this cavity the result was perfect, as no suppuration took place. The soft parts healed by primary intention and are still perfectly well. In the os calcis we were not so successful as only about two thirds of the chips remained in the upper part of the cavity, the lower third after some months filling by granulation. The contour of the heel is almost perfect, and the os calcis, as firm as any bone, and the function as good as that of the opposite foot which is perfect. This patient has decided enlargement of the liver and spleen, evidently due to amyloid degeneration, caused by the long continued suppurative process of bone.

"How do the microörganisms gain entrance to the blood," is often asked, but is by no means as yet a settled question.

According to Kraske, the skin is the most frequent source. Osteomyelitis following an abscess in the skin and subcutaneous tissue has frequently been observed. It is also supposed that the microbes enter through small wounds in the skin even without producing any disturbance at the point of entrance. The tonsils, which are in many persons in a diseased condition, even from early childhood, may be the vestibule through which the microbes gain admission. It is contended by many observers that the intestinal canal is the chief route of invasion, and again, by others through the respiratory tract.

PATHOLOGY.

The normal color of the medullary tissue changes to red at the site of the inflammation, which then very much resembles the normal medullary tissue in flat bone, as in the ribs, skull, scapula, etc. The fat cells disappear, and the parts become infiltrated with granulation cells. There is a great increase in the number of the leucocytes, and of cells containing red masses and pigment granules.

The leucocytes, according to Boyce, are also greatly increased in the blood. Ullmann found that in dogs in which osteomyelitis was produced experimentally, there was an increase of the white corpuscles four to six fold.

On section of the bone, collections of pus are found, which are surrounded by healthy medullary substance. The pus is generally of a brownish color, has a foul odor and it frequently, but not always, contains drops of medullary fat. This fat is brought forth by the increased pressure in the medullary cavity, which forces the fat drops through the Haversian canals. In many cases the epiphysial cartilage is entirely destroyed,or broken through, the disease extending into the joint. The pus may also find its way into the joint by first perforating the periosteum and finally passing through the capsule. Osteomyelitis always results in more or less necrosis of the bone in which the disease has been present. The nearer to the epiphysial line the inflammatory process takes place, the deeper seated it generally is, and the greater the destruction of tissue, which may be *so* extensive as to involve the entire shaft of a long bone.

If the disease originates near the middle of the shaft of a long bone, the necrosis is usually limited to a portion of the cortex, and would make it appear as though it might be of periosteal origin.

TREATMENT.

The treatment depends greatly upon the stage of the disease process when the patient is brought to the attention of the surgeon. If fortunate enough to be early, before necrosis of the medullary and bone tissue has become extensive, the patient should at once be placed under the influence of an anæsthetic, the field of operation should be made thoroughly aseptic, and if in one of the extremities it should be made bloodless by means of an Esmarck bandage. An incision of sufficient length should be made through the soft parts,over the point of greatest tenderness, that is if no important blood vessels and nerves are in the way. The soft parts, including the periosteum, should be drawn apart by means of two sharp retractors, or what may be even better in some cases is the ingenious instrument designed by Dr. Frank Allport for retracting the integument in the operation for mastoid disease.

The bone being exposed, the medullary cavity should now be opened with either a chisel or trephine of suitable size, preferably the former, and the abscess cavity thoroughly eradicated by cutting away a sufficient amount of bone with chisel and sharp spoon. After this, the cavity should be thoroughly washed with a solution of bichloride of mercury 1-1000, and then loosely packed with iodoform gauze, and the entire wound covered with bichloride or sterilized gauze and cotton and properly bandaged. The parts should then be immobilized, if an extremity, by being placed upon a suitable splint and in an elevated position for at least two or three days.

The dressing may be changed every second or third day as long as there is pus. After there are no longer any microörganisms of suppuration found in the discharge, the cavity may be filled with Senn's decalcified bone chips, as in cases 5 and 6, and the edges of the integument brought in apposition by catgut and covered with gauze, cotton and bandage. Or the defect may be allowed to fill in by granulation, which of course makes the recovery much more protracted.

Should, as is so often the case, the patient not come to the notice of the surgeon in due time to be aided by an early radical operation, i. e., after the pain and all constitutional symptoms have subsided and fistulæ formed for the free exit of pus, then in all probability it will be best to defer all operative procedure until a complete separation of the necrosed from the living bone has taken place, and the involucrum or new bone surrounding the sequestrum is sufficiently formed for support. The length of time required for the complete process of demarcation or separation of the sequestrum to take place, varies in different cases, from two to eighteen months, and at the same time the bone regenerative process or the formation of the involucrum takes place, so that in most instances there will be enough new bone, if properly managed, to secure a useful limb, with little or no deformity.

After sequestrotomy, the cavity should be brought into an aseptic condition as soon as possible, and packed, as already described, with decalcified bone chips.

In conclusion I should like to emphasize: 1st, the fact that primary periostitis to the extent of producing necrosis of bone never exists; and that the periostitis which is so often observed in cases of bone disease is always secondary to the inflammatory process which had its origin in the medullary tissue. 2nd, the diagnosis of acute osteomyelitis should be made early, and without delay a radical operation performed, by opening sufficiently the medullary cavity at the seat of the abscess, thus reducing the interosseous tension, and the great suffering and saving from destruction not only the medullary and bone tissue in which the disease originated, but in many instances an adjacent joint or an entire extremity; and occasionally the life of a patient, who without an early radical operation would sucumb to septicæmia or pyo-septicæmia.

GOITRE.

By James H. Dunn, M. D.

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Although some form or degree of thyroid enlargement appears to be very frequent in this part of the world, serious goitre is comparatively rare. In a considerable clinical experience extending over many years and drawn from all classes of patients in our state I do not recall more than a dozen cases in which surgical interference seemed clearly advisable. Perhaps however in the present state of surgery the great ease and safety of thyroid operations might somewhat enlarge this number to include some operations for cosmetic purposes in large deforming tumors with no serious symptoms. I have had occasion since 1885 to resort to surgical interference in seven instances, and strange to say the last three cases came close together and within a few months. This was entirely due to accident, as no change in the indications for operation was made, all presenting serious interference with respiration. Briefly tabulated the cases are as follows:

No.	Date	Name	Nationality	Age	Form	Operation	Result
1	1885	Mrs. S.	American	35	Cystic; size of orange.	Enucleation	Recovery. Well to date.
2	1889	Boy	Polish Jew	15	" "	Enucleation	Recovery. Well when last seen, two years ago.
3	1890	Miss M.	American	25	Adenoma	Excision of right lobe	Recovery. Well four months later.
4	1894	Mrs. J.	German	45	"	Excision of left lobe	Recovery. Well.
5	1895	J. F., male.	Irish American	18	"	Excision of all of left and one-third of right lobe	Recovery. Well to date. Trifle hoarse for a few months.
6	1895	Miss F.	Canadian	45	"	Excision of left lobe	Recovery. Well to date.
7	1896	Miss B.	German	30	"	Excision of right lobe	Recovery. Well. Trifle hoarse for a few weeks.

In no case was the patient confined to the bed for longer than one week, in fact most of the patients insisted on sitting up after the third day. Nor have any ill effects been observed excepting slight hoarseness in two cases, which subsequently disappeared. This symptom was probably due to slight interference with some fibres of the recurrent laryngeal nerve. In two cases presenting decided circulatory disturbances, *e. g.*, rapid pulse, the symptoms have rapidly subsided. The results have been in every way wholly satisfactory. With two exceptions the hemorrhage was astonishingly little. In case 5 the tumor was quite similar in size and structure to that of case 6 shown in Fig. 1, and though all the left lobe, the isthmus and a good third of the right lobe were removed, there was positively less than two drachms of blood lost. There was but slightly more shed in case 6. In case 7, the neck being short and fat, the veins large and brittle, there was sharp bleeding during the first stage of the operation until the gland was enucleated and raised out of its bed to ligate the thyroid vessels. It seems to me that with Kocher's incisions at once exposing freely the whole or a half of the gland, clearing and raising the affected lobe, carefully ligating two or four of the thyroid arteries as required, we may remove so much of the gland as seems desirable and stitch up the incised surface with cat gut, "enucleation--excision," with almost perfect freedom from dangerous hemorrhage. Of course I am fully aware that these cases vary most decidedly in their character and difficulties, and over confidence would not be seemly if based only upon half a dozen cases. But it is difficult for most of us to appreciate what technique may and has accomplished in operations like those upon the thyroid. A dozen years ago I have seen Von Bergman and Bilroth each lose patients, I judge from hemorrhage which I dare say under present methods would be easily, safely, and quickly disposed of with trifling bleeding. Thyroidectomy is far from the formidable operation but recently even still by many supposed. Indeed Kocher in 900 operations reports a mortality of but one per cent. The history of the case shown in these photographs, one taken before and the other seven days after the operation, is briefly as follows: Miss F., aged 45, born in Canada of Irish parentage and giving no clear hereditory taint, came in great agitation because of attacks of dyspnœa from which she feared she might choke to death. She had a moderate goitre at puberty or soon after for which she had received the iodine treatment with success, *i. e.*, the tumor disappeared or nearly so and had not occasioned any trouble sufficient to attract her attention until about four years ago, when it began to enlarge, at first slowly but progressively. Resort to iodine treatment at different times was had without effect. Until the past year however the goitre had caused no discomfort other than that of a deformity. For the past year the growth had been much more rapid, and occasional spells of dyspnœa, especially while lying in bed, had appeared and increased in frequency and urgency until during the past two or three weeks she had feared to go to bed lest she should suffocate. She went at once to St. Mary's Hospital and had the left lobe removed on the following day. The right lobe, though slightly enlarged, promptly shrunk to normal dimensions as may be noted in Fig. 2. taken on the seventh day after the operation. The very large incision closed excepting the lower inch, with a subcuticular stitch, left but a scarcely noticeable scar, eventually much less than this untouched photograph taken the day that the stitch was removed and before the drainage opening had closed would indicate. She was immediately relieved of her dyspnœa and was perfectly able to sit up the next morning and has up to date remained well.

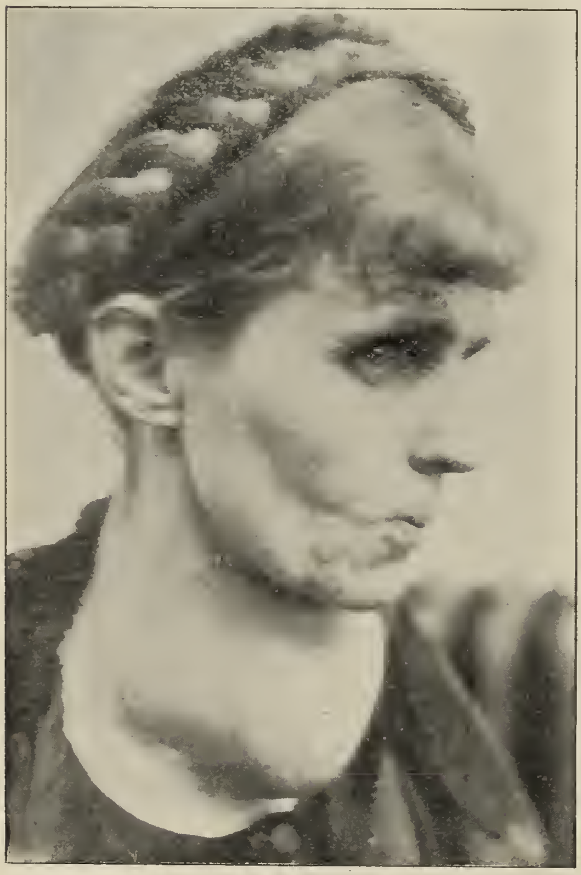

FIGURE 1.

Under any circumstances, at least in countries like ours where the disease is not endemic, it is but rarely that goitre requires surgical treatment, and it is altogether probable that further therapeutic developments or even the better and timely utilization of such as we now possess, may still further limit the cases which have heretofore called for surgical interference.

Our knowledge of the functions and of the disorders of the thyroid gland has, during the past few years, been most encouragingly advanced. Certain clinical data in reference to goitre and cretinism had long been accumulating, more recently tetany and what is now termed myxordema were suspected by shrewd clinicians of being correlated disorders, but it was not until the Swiss surgeons had added their observations on the results of thyroidectomy that a key was found which opened up at least the entry to the whole subject and threw a flood of light upon the physiology and the pathology of the thyroid gland, traced a relationship between several apparently dissimilar diseases, and disclosed one of the most rare of medical discoveries, viz: A specific remedy for at least one of the severest manifestations of disturbed thyroid function. Though our knowledge of the subject is still pretty vague, it appears brilliant in contrast with the complete darkness which so recently enveloped the physiology and pathology of this gland. It is even now quite sufficient for very practical and beneficial use in practice as well as hope inspiring as to its further more exact development and extension. In brief we may say that the function of the thyroid is proven to be essential to healthy metabolism. That the sudden complete arrest of this function is very prone to cause in a few days or weeks, the fatal tetany, the most acute form of these disturbances. Of the many cases escaping this acute disturbance of the metabolism, most soon or late develop myxoderma which may be regarded as the chronic manifestation of surpressed thyroid function, while in cretinism is observed the final stage of the cachexia strumivipera, which is a result of the congenital suppression of this function, or at least of its disturbance during the period of development of the child. It stands also proven, I believe, that myxoderma may be prevented and even cured by thyroid feeding and that the cretin's condition may be much improved by its early and continuous use. It naturally follows as a corollary from these demonstrations that total thyroidectomy, save possibly in some instances of malignant disease of the gland,is prohibited to scientific surgery,and only partial excisions of the gland are to be thought of for benign goitre.

The initial lesion, so to speak, of these various disorders is from a practical standpoint, goitre. Eighty per cent.of cretins come of goiterous parents, though complete cretins are themselves rarely goiterous since they never reach puberty. However the cretinous are often subject to goitre.

What then is goitre? Currently almost any and every tumefaction of the thyroid, at least if we exclude transient congestions and clearly malignant disease of the gland. Great confusion has prevailed in the classification and description of these thyroid tumefactions, owing to the apparently great even singular variety in their structure, but the researches of recent years have shown them to be essentially hyperplasias of the thyroid, different modes of development lending the great variety of their gross appearance. The primordial form is apparently a simple adenoma. The cystic, colloid, fibrous, aneurismal and varicose changes in perplexing variety are incidental and secondary and give rise to the varied gross appearance of these growths in clinic and at the operation table.

Clinically goitre presents the most diverse aspect in almost every respect, whether as to size, location, course symptoms and somatic effects. It may appear to be little more than a deformity, not seriously interfering with the function of the gland, nor compromising neighboring structures, others (though in this country, at least, not a large percentage) cause more or less marked interference with the thyroid function, and yet another few become dangerous from interference with respiration. Thus goitre appears to interfere with the thyroid function only incidentally and in various degrees.

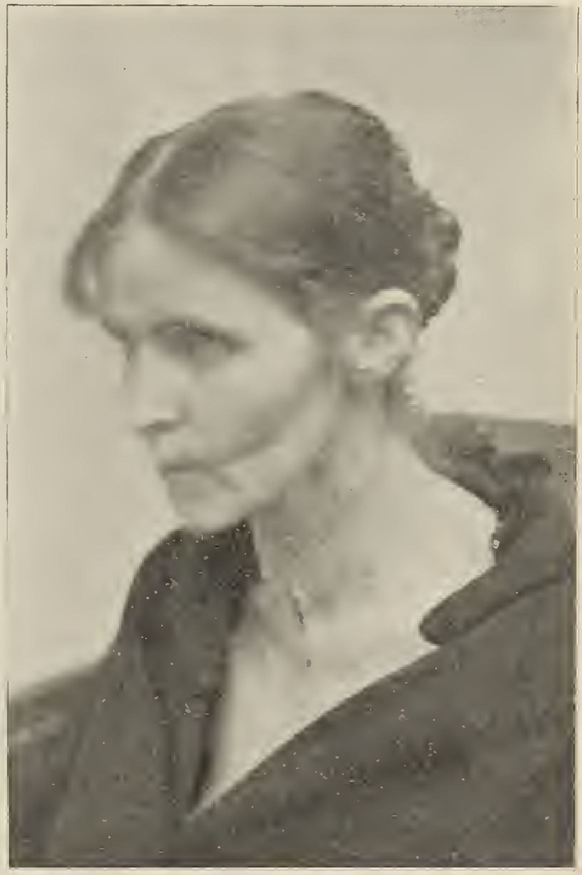

FIGURE 2.

Goitre and its associated disturbances of the thyroid function are so overwhelmingly disproportionate in frequency in different localities, so clearly endemic in certain well known districts, as to suggest a specified cause which in these endemic localities has been quite clearly traced to some organic constituent of the water supply and believed by some to be of a microbic nature, that some boldly declare it to be an infectious disease caused by an unknown microbe. The fact, however,that goitre and all the associated disturbances of the thyroid function occur sporadically at least in some degree in all parts of the world, together with certain other long recognized predisposing factors,leads one to suspect at once that there are other important if not independant pathological factors,especially in sporadic goitre.

Most observers look upon repeated congestions as playing a very important rôle, at least as a predisposing cause, in these cases. The thyroid is so to speak a venous sponge, and its congestion may be caused directly, as by interference with the veins of the neck, in lifting, straining, blowing, etc. Much more perceptible and frequent, however, are engorgements sympthetic with distubances of the sexual system. This is a matter of daily clinical and even ancient popular observation. Indeed this connection is so striking as to have led Meckel to consider the thyroid as a repetition of the uterus in the neck. At the first menstruation the thyroid often enlarges very perceptibly. Freund asserts that this is not exceptional at subsequent menstruations especially if suddenly suppressed. During pregnancy thyroid congestion is very frequent, Freund claiming to be able to demonstrate it in 45 out of 50 women. Though I have often had opportunity to note this effect of pregnancy on goitre, I suspect these figures given by Freund are much too high for the women of this country.

Heredity if carefully investigated appears to play a larger role than would often appear in a superfi- history. Many patients when closely questioned cial are found to come from goiterous countries or their ancestors have, and the descendants of ancestors with disturbed thyroid function appear to show a tendency to thyroid disease. The subjects of goitre further show an undue proportion of abnormalities of the heart and great blood vessels. It is believed that various infectious diseases such as malaria, typhoid and the exanthemata often cause thyroid congestion. It is more than probable that these physiological and various pathological congestions of the thyroid are the beginning of sporadic goitre. From such congestions, repeated and persistent, all forms of goitre may under favoring conditions easily be conceived to develop. It is of great importance to remember this since this early stage appears to be very amenable to treatment. It is the secondary and chronic changes over which medical treatment has and could rationally be expected to have little if any effect. When a considerable cyst has formed, or whenever tissue, whether parenchymatous, connective or vascular has formed and become old in pathological vices, they for the most part must be left to pursue their own course or be removed by surgery rather than by medicine.

In most recent thyroid congestions and hyperplasias, potassium iodide in doses of from 4 to 8 grs.three times a day has been proven by long and wide experience to be a very reliable remedy. I have found it so reliable in cases of this class that I have little experience with other drugs. Sometimes with this treatment a mild biniodide of mercury ointment may be rubbed into the neck.

Of late much has been said of thyroid extract. It is difficult to see how this remedy can be of use in every form of thyroid disease in which it seems to have been used with wonderful results, not to mention obesity and some other ailments so far as we know unconnected with thyroid disease. In atrophy and in hypertrophy and in exophthalmic alike, it has been tried and like most new things succeeded. My use of it is limited to one case of exophthalmic goitre in which it did no good, though potassium iodide and strophanthus gave at least palpable if not wholly satisfactory results. Kocher, who ought to be one of the best judges in the world, has given very encouraging reports of extensive trials of the remedy, else I should not incline to experiment with it at all, and even so I should resort to it only after a trial of the old and tried iodine treatment had failed.*

These slighter thyroid enlargements, many of them at least at first little more than thyroid congestions, and very satisfactorily managed by medical and hygienic methods, form the vast majority of goitre cases in this part of the world. However, from neglect of timely treatment or in spite of it, another considerable, though far less numerous class of cases consult us, viz: those with confirmed thyroid tumors which though quite or nearly symptomless annoy their possessors because of the deformity, fears as to their future, or slight sensations of choking, palpitation, etc., and for which many methods of treatment have been tried.

While in Berlin, in 1884,I found the injection of various substances, especially iodine, was having one of its periodic revivals, and I saw many cases treated in this way with varying success. After a very brief personal trial I have given it up, first because it, like all such intraparenchymatous injections of irritating substances into vascular organs, must be more or less dangerous. However small the danger, the demonstration of the fraction of mortality would be far from solace to the attendant in case it should chance to number his patient. Second, it is quite painful. Third, it is decidedly uncertain. It is, of course, quite necessary to decide upon the variety of goitre before selecting a treatment. If it be cystic, at least if the cyst has reached any appreciable size, it is needless to resort to medicine for its removal. As these cysts are sometimes rather deceptive, the use of a sterile hypodermic needle may always clear up the diagnosis. I have in one instance aspirated a cyst the size of a hen's egg and injected the cavity with tincture of iodine and effected a permanent cure. But I should not recommend it again as the reaction was quite alarming. I believe it is less dangerous, more agreeable to the patient, (aside from superstitious dread of the knife) and more certain of results to dissect out these cysts, and I dare say that though tapping, injecting, draining, etc., are still mentioned in text books, the treatment of the future for thyroid cysts will be clean aseptic removal. In fact to this middle class of goitreous patients, with confirmed goitres which medicine could not be expected to or have failed to relieve, if suffering no symptoms of importance, I have been accustomed to say "let the growth alone unless it should show dangerous tendencies." In that case resort promptly to partial thyroidectomy. As already remarked, the actual necessity for the latter rarely arises, yet it is perhaps well to admonish patients and medical attendants that in case a goitre clearly shows such a tendency it is folly to let the patient struggle along to the very verge of asphyxiation before advising interference, thus greatly increasing the risks and difficulty of operation. A patient ought never to be allowed to proceed to a point where preliminary tracheotomy is required, which to say nothing worse precludes an antiseptic treatment of a large wound in the neck and yields an uncomparably greater mortality.

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*Note—I have since had a most striking success in reducing a very large and old goitre to one-fourth its previous size by eight days' use of thyroid extract.

Lastly a small percentage of goitres are associated with exophthalmos and certain nerve and circulatory disturbances, exophthalmic goitre, Basdow's or Graves' disease. Of course I do not know that this affection is certainly due to disturbed thyroid function. In fact I have not had more than five or six cases sufficiently long under my observation to give me any practical personal experience with the disease. As the affection is apparently not a frequent one and of a chronic nature, so that most cases seen outside of one's local clienteles are rarely followed long, I presume most practitioners have a like experience, viz: however many cases they may have seen, have observed but comparatively few. I should not have mentioned it but for the fact that operative treatment had of late been proposed and indeed carried out in a considerable number of cases. I can only say from the prolonged observation of a few cases that I suspect Fagge exhibits his usual shrewdness when he says: "The only possible inference seems to be that most cases at length end in recovery. The duration of the complaint is too long and the natural process of cure is too gradual to allow of its being followed out in a ward of which the inmates are gradually changing."*

I am certain that formerly I had somehow received altogether too serious a prognostic view of this disease, if I may rely upon the ultimate results of such cases as I have been able to follow for a number of years, or upon the greater experience of my colleague, Dr. J. W. Bell. This together with other reasons has prevented me thus far from advising or adopting surgical interference in this affection.

Fig. 3, represents one of my cases. This photograph was taken at the end of four weeks treatment when the thyroid enlargement and exophthalmos were both much less than on his first visit, but still shows the marked and unmistakable character of the case. The history is briefly as follows: J. M., Irish American, farmer, aged 31, previously very healthy, good family history, noticed in Feb., 1893, that his eyes began to protrude a little. Later he observed that his neck was enlarging and he soon after became exceedingly nervous, short of breath and subject to palpitation. He applied to me Dec. 6, 1894. The thyroid enlargement, much greater than shown in the cut, was chiefly of the right lobe. His pulse was 120. I put him on potassium iodide 8 grains per day and tincture strophanthus with hygienic directions. In three weeks he returned decidedly improved when the photograph was taken. By Feb.

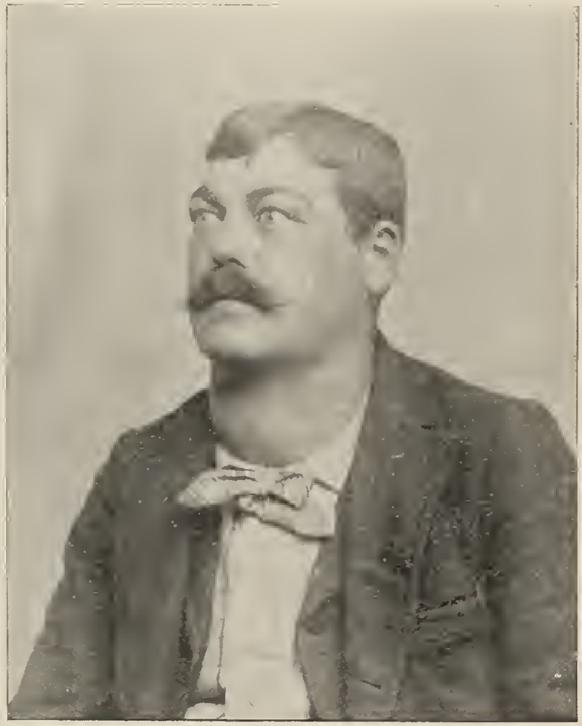

FIGURE 3.

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*Pract. Med. Vol. II., p. 106.

15, 1895, his improvement was very much more marked and he soon dropped medical treatment. He continued to improve with some occasional relapses of symptoms during the year, and by May, 1896, he reports himself as well. I have not seen him the past year, but friends interested in him tell me that they do not notice any protrusion of the eyes or any goitre. I have found benefit from potassium iodide in several of these cases, but particularly from strophanthus and the avoidance of excitement and irritation, with such general and hygienic management as the individual cases required. If there be no intercurrent or consecutive disease present, I feel pretty sure that the patient under proper management will eventually recover, or at least reach a condition of practical recovery, free from the annoying nervous and circulatory disturbances.

TUMORS OF THE UPPER JAW AND THEIR OPERATIVE TREATMENT.*

By John T. Rogers, M. D.

St. Paul.

It can well be said that as compared to other portions of the body, the upper jaw claims more than its share of tumors, both malignant and benign, and for this reason I have thought it not inopportune at this time to take up the study of new growths occurring in the region of the superior maxillæ. It will be my purpose to call your attention more particularly to the points of differential diagnosis between the malignant and benign neoplasms. While the maxillæ are perhaps more frequently the seat of tumors than are any other bones of the body, it will be my endeavor here to present for your consideration only those which we are most likely to see in ordinary practice. From the standpoint of malignancy and frequency of occurrence, sarcomata and carcinomata occupy by far the most important positions of all tumors in this location. As to the relative frequency of occurrence of these two growths there is a wide difference of opinion expressed by the various authorities. Weber, Koenig and Bryant state that sarcomata exceed carcinomata, and Senn goes so far as to state that "with few exceptions tumors of the jaws are sarcomata." On the other hand Butlin and Gurlt have found carcinomata more frequently. As a matter of fact it makes little difference practically which occurs most frequently, as they are about equal in malignancy and the prognosis and treatment of each is the same.

In studying the etiology of these two growths we find heredity a prolific cause. According to Baker of England 22.4 per cent. of his cancerous patients lost one or more of their relations from the same disease. What this hereditary predisposition is we do not know, but we have no more reason to deny its existence in cancer than in any other pathological process.

Traumatism. In a large proportion of the cases which I have seen, the patients attributed the beginning of their trouble to an injury. Senn says "Without the presence of the essential tumor matrix no amount of injury will cause carcinoma." Paget, Billroth and Conheim ascribed to injury 20 per cent. of their cases. According to Williams the immediate cause of tumor growth under such circumstances is due less to the injury itself than to the disturbance of nutrition of the tissues in the locality. Cancer may follow immediately after an injury or it may require repeated injuries to produce the result (Senn).

Age. In Reim's cases the age varies from five to eighty-four years, the majority occurring after forty years, while on the other hand sarcoma usually occurs before the age of forty. It may be put down as a rule that carcinoma is most prevalent in middle and past middle life while sarcoma occurs in the young.

Climate. Walshe has collected evidence to show that the largest number of carcinomata are found in Europe, and that it is rare in Hobart Town, Calcutta, Egypt, Algiers, Senegal, Arabia and tropical parts of America, and the Indians of North America are almost immune to the disease.

Mental depression. Senn says that "mental anxiety and worry of all kinds may favor the origin and growth of carcinoma by impairing nutrition and thus diminishing the physiological resistance of the tissues in the vicinity of the tumor matrix."

To the present and future generation of bacteriologists we will leave the question of microbes as an etiological factor in the production of these growths. At present our knowledge is too limited to express any opinion on this subject. The pathology of carcinomata in this region differs in no wise from the condition in other portions of the body, except possibly the surface irregularity and zone of infiltration in the early stages are not so well marked as in other regions. Sarcomata are usually of the mixed celled variety but it may be any of the other varieties and by the character of the predominating cells we are enabled to judge of its malignancy, the small round celled being most malignant. It has been for a long time supposed that sarcomata were encapsulated, but Senn calls this a "pathological delusion" and says that "what appears to be a capsule is the connective tissue around the periphery of the tumor, which tissue has become condensed by pressure, but which holds in its meshes young sarcoma cells which are also found in a zone of lesser or greater width in adjacent tissues." If this be true it follows that we must be careful to remove not only the capsule but the adjacent tissues or else recurrence will inevitably take place.

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* Read before the Ramsey County Medical Society, October 26, 1896.

Symptoms and diagnosis. The differential diagnosis between carcinoma and sarcoma in this region will in almost all cases be impossible without recourse to the microscope, a careful study of the clinical history of the case, the age of the patient, heredity, traumatism, etc., remembering that carcinoma occurs rarely before middle and past middle life, while sacoma occurs in early life. Carcinoma is slowly growing and usually painful and shows a great irregularity of contour and a tendency to early ulceration with early involvement of adjacent lymphatics, while sarcoma grows rapidly, is painless, smooth and oval or oblong in contour, ulceration rarely occurring before the growth has reached considerable dimensions, and the lymphatics are late to become involved. Traumatism seems to exercise a greater influence in the production of sarcoma than carcinoma. The striking similarity of symptoms in inflammatory conditions of the antrum and new growths malignant or otherwise has often led to error in diagnosis. It seems strange that an abscess of the antrum could be mistaken for a sarcoma, but many of us have seen this mistake made by some of the best men in the profession. In abscess of the antrum we invariably got a pus history. It is commonly caused by diseased teeth, and is indicated by a feeling of fulness in the upper jaw accompanied with toothache, throbbing in character. A discharge of pus from the nostril on the affected side should point unerringly to abscess of the antrum.

Prognosis. In Butlin's work, published in 1887, we find in writing of operations for the removal of malignant growths of the upper jaws he says "that unless there is a reasonable hope that better results will be procured in future the operation must be condemned." Thanks to the improvements in surgical technique and a more thorough knowledge of the pathology of malignant growths better results have been obtained, and we may now hope for a reasonably large percentage of cures if the diagnosis has been made early and excision has been complete and thorough. One case of sarcoma operated upon by Dr. C. A. Wheaton some twelve or fifteen years ago has not returned, and the writer is able to recall two others operated upon since that time without recurrence. We agree with Estlander when he says: "A patient with sarcoma of the upper jaw has, under ordinary conditions, the prospect of living a year from the time of the beginning of the disease. In the majority of cases, probably, the patient does not seek advice until in the second half of this period, and would have therefore six months or less to live without operation. If this resection is performed, the patient has exposed his life to a certain danger which as we have seen is now less than 6 per cent. but he gains 17 chances in 100 of being completely cured and as great a prospect of prolonging his life a year, while there are 66 chances in 100 that nothing will be lost nor gained except some relief from pain for the balance of the person's life."

The treatment we shall take up after considering a few of the rare forms of tumors.

Weber's table of 307 tumors of the upper jaw shows a percentage of 5.5 per cent. of fibromata. The proportion in Reim's table is 11 in 127 cases, or 8.6 per cent. Without taking up your time to consider the pathology and histology of this tumor we will pass on to its etiology. They appear as a rule before the age of 35; they may be congenital; irritation seems to play an important role in their production as may be seen in fibromata of the ear from wearing earnings. Its growth is always slow and when uncomplicated rarely attains sufficient dimensions to cause any trouble in this locality. It frequently becomes sarcomatous however, and from this fact we are led to operate on all cases as soon as possible.

Enchondroma is more rarely met with here than is fibroma. In 190 cases collected by Weber only 3. 7 per cent. affected the superior maxilla. Out of 307 cases of the upper jaw collected by Weber only 2. 6 per cent. were enchondromata. The growth usually appears in bone before the age of 15 years. It is hard and irregular in outline, of slow growth and very prone to ossification or calcification. Rickets and traumatism are the most prolific exciting causes. From an osteosarcoma it is differentiated by its slow growth, and also by the frequency with which it occurs as a multiple affection. The prognosis is favorable and treatment is the same as for other tumors.

Osteoma of the jaws is a comparatively rare affection. It is a painless, slow growing tumor which after reaching a certain size remains stationary. It is easily differentiated from all other tumors except enchondroma, but in this case the use of an exploring needle will reveal the true nature of the growth. It is a growth of early adult life and frequently presents itself on both superior maxillæ simultaneously. Adenoma is perhaps the rarest of all forms of tumor of the upper jaw, in Weber's 307 cases it did not occur once. Reim reports one case in which both upper jaws were affected.

Epulis is of two varieties, the sarcomatous and the fibrous; they are the most common growth of the upper jaw and for that reason it is very important to make a differential diagnosis between the malignant and and benign forms.

Sarcomatous epulis is as a rule of the spindle-celled variety and usually springs from the alveolar border of the jaws involving the gums secondarily. They are usually of slow growth and occur after the age of 20, but a few cases have been reported in children. The harder the tumor the slower it grows. The teeth are loosened and often pushed out of their sockets. In a number of cases which I have seen the tumor appeared pedunculated from the contraction at its base. The soft tumors are most dangerous and require early and thorough removal more especially if the microscope demonstrates the small,round-celled variety. Sarcomatous epulis grows into the bone and rapidly extends to the periosteum over the outer portion of the jaw, while fibrous epulis is only attached to the bone and does not involve the periosteum except secondarily. Fibrous epulis is a very hard, smooth tumor covered with skin and mucous membrane. They may become cystic and like the sarcomatous variety they are as a rule pedunculated. They are of exceedingly slow growth and a decayed tooth seems to be the most frequent exciting cause. Removal of the growth always effects a cure, while in the sarcomatous variety it is necessary always to sacrifice a considerable portion of the alveolus to prevent recurrence.

Dentigerous cysts and odontomata are of rather frequent occurrence and deserve some consideration before taking up the subject of the operative treatment of tumors of the upper jaw. Sutton's definition of odontomata is, that they are tumors composed of dental tissue in varying proportions and in different degrees of developement, arising from teeth germs or from teeth still in process of growth. The follicular odontomes are the dentigerous cysts and it is with this variety that we are most interested. According to Senn they occur commonly in connection with teeth of the permanent set and especially with the molars. He reports three cases in one of which the tumor was as large as an orange and contained an imperfectly developed molar tooth, and a clear viscid fluid. The walls of the cysts become thin and crepitate under pressure giving the crackling sensation (*bruit de parchemin*) which is considered by Renger and Dupuytven as a diagnostic sign. I have one case under observation at present, a child four years of age which very beautifully demonstrates the *bruit de parchemin*. I believe it to be a case of dentigerous cyst. The parents have refused operation. Senn says that dentigerous cysts invariably occur in connection with teeth, the eruption of which is retarted or prevented from being developed in an abnormal position whereby they become inpacted by the surrounding bone. About six months ago Dr. C. A. Wheaton operated upon a dentigerous cyst as large as an English walnut,in a child five years of age. It was of rapid growth and had every appearance of being malignant until the antrum was explored and a misplaced molar tooth was found to be the cause of the tumor. When there is a question of doubt in the diagnosis of any tumor of the antrum it is always safe and wise to explore before performing any mutilating operation. The treatment of dentigerous cysts consists in opening and curretting out the growth and packing with iodoform gauze; the prognosis is always good.

Operative treatment. Excision of the upper jaw was first performed by Jameson, of Baltimore, in 1820. In 1824, Rogers,of New York succeeded in removing the greater portion of both jaws. In 1887, Butlin places the mortality at 30 per cent.; in 1890 Bryant gives 14 per cent. J. William White and Alfred C. Wood of Philadelphia give the mortality from 1887 to 1896 as 6 per cent. Recent statistics would therefore indicate that this operation is not as formidable as is generally supposed.

Of those cases which have come under my personal observation, about fifteen in all, the percentage is high, but death in most cases was due to a recurrence of the disease and not to the operation. In two cases death followed from meningitis. In both the disease was far advanced and in one I was compelled to enucleate the eye in order to reach the contents of the orbit. Hemorrhage was profuse in only one case. The technique of the operation for excision of the upper jaw is described in every text book, consequently it will be unnecessary for me to describe it here. The operation usually adopted is known as Ferguson's. In one case where operation was refused, Mesmod of Geneva reports a cure from the use of electrolysis; it required ten sittings and 25 milliamperes used at each sitting; no return after five months.

While not an advocate of electricity, I would advise its use in those cases where operation is absolutely refused.

Jos. D. Bryant's conclusions are as follows:

1. Excision of one superior maxilla is not a dangerous operation.

2. Excision of both superior maxillæ is not specially dangerous.

3. Hemorrhage is most to be feared.

4. Removal of the upper jaw for cure of bony and fibrous tumors and removal of naso-pharyngeal polypi is dangerous from hemorrhage.

5. Ligature of one or both carotids is commendable when hemorrhage is feared.

6. Ligature of carotids may hinder the growth of the tumor.

7. Ligature of the common carotid for control of the external carotid is unnecessary.

8. Complete removal of the jaws is five times as fatal as incomplete.

In regard to ligation of the carotids, Gross in his "System of Surgery" says that "he had never found it necessary in any of his operations to secure the carotid artery as a means of preventing hemorrhage. Indeed it is surprising that such a procedure should ever have been recommended, much less practised by any one. No skilful surgeon now ever employs compression of the carotid artery in these operations." The first incision for excision usually bleeds profusely for a few seconds, but compression readily controls the hemorrhage and after the jaw has been luxated and removed packing will be all that is required. In the case where it was necessary to remove the contents of the orbit we controlled hemorrhage entirely by compression and packing; not a single ligature was used in the entire operation.

THE TREATMENT OF LACERATED WOUNDS OF THE EYEBALL.*

By H. McI. Morton, M. S., M. D.

Ophthalmologist and Otologist to the St. Barnabas Hospital.

Minneapolis.

It is not likely that we find anywhere in surgery the need of more careful and discriminating judgment than in the treatment of injuries of the eyeball. In this brief paper, the point I desire to make is that in cases of severe injury to the eye, we should not exercise too much haste in removing the injured member without first attempting to save it, with vision if possible, and if vision is not obtainable, to at least attempt to save the globe.

It may, and very properly, appear to some members of this body, that this is an unnecessary and superfluous plea, inasmuch as such a plan would be adopted without the urging. Owing, however, to the teaching of many years that the danger of inflammation in the uninjured eye, is an almost constant, or at least very common, sequel, be the injured member allowed to remain, it has become the plan with many surgeons—with too many, I fear—to hastily advise the removal of what may appear on *first* inspection a badly injured eye. I am convinced, while yet not unmindful of the possible baneful effects of sympathetic inflammation in the sound eye, that such advice is oftimes unwise, and as well very unjust to the patient.

This fear has cost many eyes that would not alone have retained their normal form and appearance, (this in itself meaning much to the patient,) but many eyes which would have had almost or quite normal vision, and this without danger to the sound eye. That the danger of sympathetic ophthalmia exists, none will gainsay, but, since its sequence to the injured eye is so very inconstant, and its presence not always preventable, even by hasty removal of the globe, that I think the facts —which must be admitted—that we may many times save both the globe and the vision, and that many eyes come to us with the history of severe traumatism sustained long ago and still retaining good vision and without expense to the other eye, should make us less hasty to advise removal, without any attempt—though it be for a day or two—to save it.

The eye removed, has not *positively*—in the light of clinical experience—assured the patient of absolute freedom from danger in the other eye, and has left the patient the unpleasant necessity of using an artificial eye the balance of his days, and with the chances of a disagreeable blenorrhœa from the globeless orbit.

This blenorrhœa is not an uncommon condition in the orbit after removal of the globe, is very unpleasant to the patient, is not easy to stop, and is very apt to recur. Then we know that it may occur that the injured eye, while offending the sound eye to the point of blindness, may itself retain a good degree of vision. Thus we may, by hasty removal, not only fail to save the sound eye, but remove what might have been a useful organ to a now blind patient. Some may think—unlike myself—that conservatism does not rest on the side of reasonable delay. If, however, the oculist would place himself in the position of his patient, I think he would oftimes grant this delay.

When after all hope of the eyeball retaining its form is at an end, after the chance of sight is gone, after there have been symptoms of a tender and painful globe, and after we have symptoms of irritation in the sound eye that do not yield at once, then and not before, remove an eye in which the wound, although severe, is not obviously destructive to preservation of the normal shape of the globe and vision.

With careful nursing and conservative surgery, very badly injured eyes may get well.

Again, although very contrary to views generally held, it is my belief that uninfected wounds of the ciliary region and cornea are not more dangerous than in other parts of the globe, so far as danger to the sound eye is concerned. I think this error has arisen because a very large majority of all wounds of the eye are in this region; thus it is obvious that we would have more sympathetic trouble from a region where we have the most wounds.

Please notice that I say uninfected wounds, for it is possible that, owing to the more active lymphatic and circulatory function, and the larger and more direct outlets at this point, infected bodies may cause infected wounds, which may afford more danger to the other eye than wounds further back; but I am not sure of this, for I have seen some cases which would support a contrary belief.

Briefly, I would advise an attempt at removal of all foreign material by instruments or by the magnet and irrigation. In cases of injury to the cornea and lens with much swelling of the latter, a large incision made with the Graefe knife behind the corneo-scleral junction, with a broad iridectomy, subsequent removal of all lens matter, and the washing of the anterior chamber with warm sterilized water, is my mode of procedure. Much attention must be given to the general condition of the patient. The bowels should be attended to by small doses of calomel hourly for some hours, followed by a dose of salts, the patient to evacuate in the bed pan, and not to move from the bed. Absolute rest, light diet, with general tonics or malt, should be administered. The eye should then be left alone as much as possible, for a meddlesome treatment is the worst to pursue in the care of an injured eye.

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*Read before the Minnesota State Medical Society, June, 1896.

The eye may be douched daily by the oculist—not by the nurse—with Tri-Cresol 1-1000—an antiseptic I have used for two years and with increasing confidence, or with Borolyphol, 1-30. On a few occasions I have used Formaline, 1-4000 or 1-6000 (stronger solutions, as 1-2000, advocated by some, are too irritating to the eye). Care must be taken to produce no pressure on the eyeball, and to abstain from attempts to remove any clots or shreds from the wound at such times.

Strickler in the American Journal of Ophthalmology for September covers the ground well with the following brief conclusions, with which I agree:

(1) If the injury is severe and extensive, I would enucleate without delay.

(2) If the wound is not obviously destructive, or if there is *any* doubt as to its not being destructive, await symptoms, and enucleate if they persist or if iridocyclitis or purulent inflammation appear.

(3) If we are unable to remove the foreign body, enucleate.

514-5-6-7 Dayton Building.

NEW INSTRUMENT.

THE POST-NASAL LYMPHOTOME.

(A New Instrument Devised for the Removal of Adenoid Vegetations.)

By Jacob E. Schadle, M. D.

St. Paul.

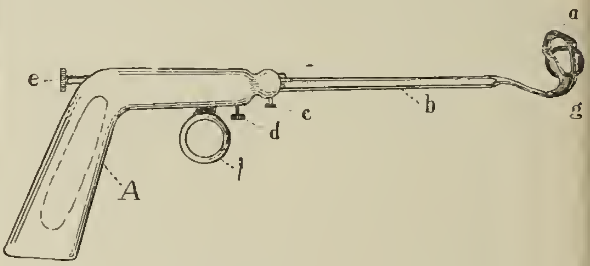
In view of the fact that a number of instruments and modifications of the same are in existence for the ablation of lymphoid masses at the vault of the naso-pharynx, it may seem needless to add another to the list. But when the peculiar situation and anatomical construction of the post-nasal cavity, as well as the difficulties encountered in operating in this space with safety and ease are considered, an improvement over former surgical procedures should no doubt receive some recognition.

The ring knife, the cutting forceps and many varieties of Gottstein's curette all possess merit, and have advanced the surgery of the naso-pharynx. Yet none, on account of its mechanism, is wholly free from the danger of producing damage to adjacent normal structures, especially when the instrument is in the hands of a novice.

The organs likely to become injured by an improper use of these instruments are the posterior extremities of the turbinated bodies, the septum, the Eustachian cushion and the mucous membrane of the oro-pharynx.

The acompanying cut is herewith presented to illustrate a new device which the writer believes will very largely overcome the objections to other instruments now used in adenoid operations. The principle of a tonsillotome has been followed in its construction, and the knife, which is flexible, owing to the curve employed at the distal end to conform to the naso-pharynx, is so guarded that the infliction of injury to normal tissue is made impossible. For convenience of manipulation a universal pistol-shaped handle (A) made of aluminum is used, to which is attached the cutting blade (a) contained in a canula (b) fastened to the handle by means of the thumb screws (c) and (d).

The hammer (e) is pressed upon by the thumb in the adjustment of the knife for an operation. The ring trigger (f) receives the index finger which pulls the knife through the growth operated upon. The cutting blade can be removed from the canula for cleansing purposes. Blades of different sizes are made so that the operater can adapt himself to the age of the patient and the size of the lymphoid tumor. Under the writer's personal supervision the Lymphotome was made and perfected by the W. F. Ford Surgical Instrument Company, Cor. 32nd St. and Fifth Avenue, New York City.



"A" indicates Aluminum handle.
"a" " cutting blade.
"b" " canula.
"c and d" indicates thumb screws.
"e" indicates hammer.
"f" " ring trigger.
"g" " Gottstein curve.

Clark Bill says that in London the police and the great stores have a list of people known to be kleptomaniacs—all of whom are people of wealth—about eight or ten hundred in number. When a merchant finds that he has lost something by theft he ascertains the names of those of his kleptomaniac clients who have visited his place within the previous day or so, and to each of these he sends a circular requesting that they forward to him at once the missing article in question or the price. The kleptomaniac does not remember whether she has stolen or not; she pays at once, therefore, to ease her awakened conscience. It so happens, therefore, that for the same theft as many as ten families will indemnify one of these great stores.

Northwestern Lancet.

ALEX. J. STONE, M. D., LL. D.,
WM. DAVIS, M. D., } *Editors.*

W. L. KLEIN, Publisher.

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FEBRUARY 15, 1897.

THE MEDICAL EXAMINER BILL.

Below is given the full text of the bill to be brought before the present session of the legislature for the purpose of doing away with the absurd and obsolete coroner system, and for putting in its place a division of the duties at present performed by the coroner, the medical part of the work to be done by a physician under the title of medical examiner,and the legal part by the judge of a district court or by some other suitable functionary. At the last meeting of the State Medical Society this step was recommended in the President's address, and the LANCET advocated the change, giving the results of the working of the medical examiner system in Massachusetts, where it has been in operation for twenty years. The Massachusetts act is taken as a model for the one proposed for Minnesota, and indeed it is difficult to see how the law can be improved, not only theoretically but in its practical effect,which in Massachusetts has been so satisfactory that there has never been any disposition to amend the law as it was originally enacted.

Too much stress cannot be laid upon the importance to the medical profession of the development of experts in medico-legal matters that would surely result from the appointment of medical examiners as provided in the bill. As things are now there are none in the state who can be regarded as entitled to speak with authority upon this important branch of medicine, because this is a branch that can be learned only from experience, and the work that alone can give experience is so scattered by the constant changes in the office of coroner, that no one man can acquire that proficiency which would place him far above the rank and file of the profession. This is doubly unfortunate because liberty and life often depend upon the testimony of the medico-legal expert and the highest skill is all too little for the responsibility that rests upon it. But let a man serve five or ten years as a medical examiner in one of the large cities, and he must make a study of his work such that with the large experience derived from the abundant practical cases brought before him he would become sufficiently skilled to be entitled to be called an expert in medico-legal matters relating to sudden and violent death,a subject of which as things are now every medical man knows a little but no one man knows much. This has been the result in Massachusetts, where there are today as the offspring of the medical examiner act several experts in medico legal medicine who have been valuable contributors to the science, on which they are entitled to speak with the highest authority. To develop such experts here would greatly redound to the credit of the medical profession, and add to the good name that Minnesota has already won in medical matters.

It is earnestly hoped that the physicians of the state will exert themselves to secure the passage of this bill which reads as follows:

A BILL FOR AN ACT TO ABOLISH THE OFFICE OF CORONER AND DEPUTY CORONER, TO PROVIDE FOR THE APPOINTMENT OF MEDICAL EXAMINERS, TO AUTHORIZE MEDICAL EXAMINATIONS AND INQUESTS IN CASES OF DEATH BY VIOLENCE OR CASUALITY, AND PROVIDING FOR THE PERFORMANCE OF SUNDRY DUTIES HERETOFORE PERFORMED BY CORONERS, AND FOR OTHER PURPOSES.

Be it enacted by the Legislature of the State of Minnesota:

Section 1. The offices of coroner and deputy coroner are hereby abolished.

Section 2. The governor shall nominate, and by and with the advice and consent of the Senate shall appoint in each county an able and discreet man, learned in the science of medicine and legally qualified under the Act to Regulate the Practice of Medicine of this State, to be and to serve as a medical examiner within the meaning of this Act.

Section 3. Each medical examiner shall receive as compensation for his services, as follows: for a view without an autopsy, five dollars; for a view and autopsy, twenty-five dollars; and for travel at the rate of ten cents per mile to and from the place of the view.

Section 4. Medical examiners shall hold their offices for the term of five years from the time of appointment, but shall be liable to removal from office at any time by the governor and with the consent of the Senate for cause shown.

Section 5. Each medical examiner, before entering upon the duties of his office, shall be sworn and give bond, with sureties, in the sum of five hundred dollars, to the treasurer of the county, conditioned for the faithful performance of the duties of his office. If a medical examiner neglects or refuses to give bond as herein required, for the period of thirty days after his appointment, the same shall be void, and another shall be made thereof.

Section 6. Each medical examiner may appoint one or more assistant medical examiners, who shall be learned in the science of medicine and legally qualified under the Act to Regulate the Practice of Medicine of this State, and who shall be resident in the county, to whom he may delegate his duties as defined by this Act whenever it may be necessary, or of whom he may demand such assistance in the performance of such duties as he may require. Such assistant medical examiners shall qualify in the manner provided for medical examiners under Section 5 of this Act. Such assistant medical examiner, when in full performance of the duties of the medical examiner in his stead, shall receive the full fees provided for such services under the provisions of this Act; and when serving as an assistant to said medical examiner shall receive such portion of said fees as the medical examiner may determine.

Section 7. Medical examiners shall make examinations as hereinafter provided, upon the view of the dead bodies of such persons only as are supposed to have come to their death by violence.

Section 8. Whenever a medical examiner has notice that there has been found, or is lying within his county, the dead body of a person who is supposed to have come to his death by violence, or from unknown causes, he shall forthwith repair to the place where such body lies and take charge of the same; and if, on view thereof, and personal inquiry into the cause and manner of the death, he deems a further examination necessary, he shall, upon being thereto authorized by the county attorney or by a judge of the district or of the municipality where such body lies, in the presence of two or more discreet persons, whose attendance he may compel by subpœna, if necessary, make an autopsy, and then and there carefully reduce or cause to be reduced to writing every fact and circumstance tending to show the condition of the body, and the cause and manner of death, together with the names and addresses of said witnesses, which record he shall subscribe. Before making such autopsy he shall call the attention of said witnesses to the position and appearance of the body.

Section 9. If, upon such view, personal inquiry or autopsy, he shall be of opinion that the death was caused by violence, he shall at once notify the county attorney and a judge of the district court if such court is in session in the county, or if not, then a judge of the municipal court if the body lies in a city or village having a municipal court, or if not, then a justice of the peace of the county, and shall file a duly attested copy of the record of his autopsy in such court, or with such county attorney; and shall in all cases certify to the clerk or registrar having the custody of the records of births, marriages and deaths in the city or town in which the person deceased came to his death, the name and residence of the person deceased, if known, or a description of his person as full as may be for identification, when the name and residence cannot be ascertained, together with the cause and manner in and by which the person deceased came to his death.

Section 10. The court or justice shall thereupon hold an inquest, which may be private, in which case any and all persons other than those required to be present by the provisions of this chapter may be excluded from the place where the same is held; and said court or justice may also direct the witnesses to be kept separate so that they cannot converse with each other until they have been examined. The county attorney, or some person designated by him, may attend the inquest, and may examine all witnesses. An inquest shall be held in all cases of death by accident upon any railroad, and the county attorney or the attorney general may direct an inquest to be held in the case of any other casualty from which the death of any person results, if, in his opinion, such inquest is necessary or expedient.

Section 11. The judge, justice or county attorney may issue subpœnas for witnesses, returnable before such court or justice. The persons served with such process shall be allowed the same fees, and their attendance may be enforced in the same manner, and they shall be subject to the same penalties as if served with a subpœna in behalf of the State in a criminal prosecution pending in said court or before said justice. Medical examiners or assistant medical examiners subpœnaed or serving as witnesses shall be allowed such fees for testimony as experts as the court may determine.

Section 12. The presiding judge or justice shall, after hearing the testimony, draw up and sign a report in which he shall find and certify when, where and by what means the person deceased came to his death, his name, if known, and all material circumstances attending his death; and if it appears that his death resulted wholly or in part from the unlawful act of any other person, he shall further state, if known to him, the name of such person, and of any person whose unlawful act contributed to such death, which report he shall file with the records of the district court in the county wherein the inquest is held.

Section 13. If the judge or justice finds that murder, manslaughter or an assault has been committed, he may bind over, as in criminal prosecutions, such witnesses as he deems necessary, or as the county attorney may designate, to appear and testify at the court in which an indictment for such offense may be found or presented.

Section 14. If a person charged by the report with the commission of any offense is not in custody, the judge or justice shall forthwith issue process for his apprehension, and such process shall be made returnable before any court or magistrate having jurisdiction in the premises, who shall proceed therein in the manner required by law. But nothing herein shall prevent any judge or justice from issuing such process before the finding of such report if it be otherwise lawful to issue the same.

Section 15. If the medical examiner reports that the death was not caused by violence, and the county attorney or attorney general shall be of a contrary opinion, either the county attorney or attorney general may direct an inquest to be held in accordance with the provisions of this act, notwithstanding the report, at which inquest he, or some person designated by him, shall be present and examine all the witnesses.

Section 16. The medical examiner may, if he deems it necessary, call a chemist or bacteriologist to aid in the examination of the body, or of substances supposed to have caused or contributed to his death, and such chemist or bacteriologist shall be entitled to such compensation for his services as the medical examiner certifies to be just and reasonable, the same being audited and allowed in the manner herein provided. The clerk or amanuensis, if any, employed to reduce to writing the results of the medical examination or autopsy, shall be allowed for his services two dollars per day.

Section 17. When a medical examiner views or makes an examination of the dead body of a stranger, he shall cause the body to be decently buried; and if he certifies that he has made a careful inquiry, and that to the best of his knowledge and belief the person found dead is a stranger, having no settlement in any city or town of this State, his fees with the actual expenses of burial shall be paid from the treasury of the State. In all other cases the expenses shall be paid by the city or town, and all other expenses by the county wherein the body is found.

Section 18. When services are rendered in bringing to land the dead body of a person found in any of the harbors, rivers or waters of the State, the medical examiner may allow such compensation for said services as he deems reasonable, but this provision shall not entitle any person to compensation for services rendered in searching for such dead body.

Section 19. The medical examiner shall return an account of the expenses of each view or autopsy, including his fees, to the county commissioners having jurisdiction over the place where the examination or view is held and shall annex thereto the written authority under which the autopsy was made. Such commissioners or auditor shall audit such accounts and certify to the treasurer of the state. or to the treasurer of the county, as the case may be, what items therein are deemed just and reasonable, which shall be paid by said treasurer to the person entitled to receive the same.

Section 20. Whenever any sheriff is a party to a suit or proceeding, or otherwise disqualified to act therein, the sheriff or deputy sheriff of any adjoining county may serve and execute all writs and precepts, and perform all duties of such sheriff which he is disqualified to perform, and may serve and execute all such writs and precepts wherein any county,town, religious society, school district, city or village is interested, notwithstanding he is at the time a member of such corporation.

Section 21. Sections two hundred thirty-nine (239), two hundred forty-two (242), two hundred forty-four (244), two hundred forty-five (245), two hundred forty-six (246), two hundred forty-seven (247), two hundred forty-eight (248),two hundred forty-nine (249), two hundred fifty-one (251), two hundred fifty-two (252) two hundred fifty-three (253), two hundred fifty-four (254), two hundred fifty-five (255), two hundred and fifty-six (256), of chapter eight (8), of the General Statutes of eighteen hundred seventy-eight (1878), and section two hundred fifty (250) of said chapter eight (8) as amended by chapter seventy-eight (78) of the General Laws of eighteen hundred eighty-seven (1887), are hereby repealed.

Section 22. Section two hundred and ninety-nine (299) of the General Laws of eighteen eighty-nine (1889) is hereby amended so as to read as follows:

"Section 299. When in case the probate court shall commit any insane person who has any money or other personal property, and there is no proper person or relative to take charge of such property, the court may deliver it to the medical examiner of the county for safe keeping or disposal as herein provided; also in case any money or property shall come into the hands of the medical examiner belonging to any deceased person when there is no proper person or relative to receive it. Such medical examiner in either case shall safely keep all such money or property until disposed of according to law."

Section 23. Section three hundred (300) of the General Laws of eighteen eighty-nine (1889) is hereby amended so as to read as follows:

Section 300. "In case no one entitled to such property shall demand the same within six months, the medical examiner shall report such fact to the probate court who may order the property sold at private sale, upon such notice as the court may direct and report such sale to the probate court. Such medical examiner shall be allowed all reasonable expenses for the care of such property and selling the same, and after deducting such expenses he shall deposit the proceeds of such sale with the treasurer of the county, in the name of the deceased or insane person; the treasurer shall give the medical examiner duplicate receipts for the same, one of which shall be filed by the medical examiner with the county auditor and one in the probate court."

Section 24. Section two hundred forty (240) of chapter eight (8) of the General Statutes of eighteen hundred seventy eight (1878), is hereby amended so as to read as follows:

"Section 240. When there is a vacancy in the office of sheriff the senior deputy sheriff shall exercise the powers and duties of said office until a sheriff is elected and qualified; and when the sheriff for any cause is committed to the jail of his county, said senior deputy sheriff shall be the keeper thereof during the time the sheriff remains therein."

Section 25. Section two hundred forty-one (241) of said chapter eight (8) is hereby amended so as to read as follows:

"Section 241. Whenever the senior deputy sheriff executes the duties of the office of sheriff, he shall perform all the duties and be subject to all liabilities and penalties imposed by law upon a sheriff duly elected and qualified."

Section 26. Section two hundred forty-three (243) of said chapter eight (8) is hereby amended so as to read as follows:

"Section 243. Whenever any party, his agent or attorney, makes and files with the Clerk of the District Court an affidavit stating that he believes the sheriff of such county will not by reason either of partiality or prejudice, consanguinity or interest, faithfully perform his duties in any action commenced, or about to be commenced, the Clerk shall direct all process in such action to the sheriff of some adjoining county.

Section 27. The coroners duly elected at the last general election in each county shall act as medical examiners under the provisions of this act until the expiration of their term of office and until their successors are appointed and qualified, provided they possess the qualifications prescribed in this act; but their compensation, powers, duties and responsibilities shall be governed by this act.

Section 28. All acts and parts of acts inconsistent herewith are hereby repealed.

Section 29. This act shall take effect and be in force from and after the first day of July, eighteen hundred ninety-seven (1897).

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

CHARLES R. BALL, M. D., SECRETARY.

REGULAR MEETING, MONDAY, OCTOBER 26, 1896.

It was decided to hold the November meeting at rooms provided in the Lowry Arcade.

Dr. McDAVITT was appointed chairman of a committee to confer with the Chamber of Commerce in regard to inviting the American Medical Association to hold its next annual meeting in St. Paul.

Dr. CHARLES L. GREENE read a paper entitled

SOME METHODS OF DIFFERENTIAL DIAGNOSIS IN TYPHOID FEVER.

Dr. BOECKMANN said that he had lately, after some experimenting with the diazo in his office work come to the preliminary results, that this test in all essentials goes parallel with the test for indican (chromaturia). In his opinion therefore the diazo reaction like that of indican means toxæmia and cannot be considered as pathognomonic in typhoid fevers, but at the same time it may be utilized for the diagnosis, if we can exclude other febrile diseases as septicæmia, tuberculosis, erysipelas, ulcerating cancer, etc., where we likewise find characteristic diazo reactions. Later researches have proven to him that the *"characteristic"* diazo reaction is not found in non febrile urines; that it consequently does not go parallel with the reactions of chromaturia.

Dr. GREENE said in closing that much as he respected Dr. BOECKMANN's opinion he was obliged to dissent wholly from his statement as to the diazo reaction of Ehrlich.

The cause of this reaction has never been determined, though Ehrlich and many others have tried to find it. The substance producing it is not indican and does not necessarily correspond in its appearance or intensity with the amount of indican present in a given speciman of urine, whether that urine be febrile or not. Indican was one of the first substances investigated and was wholly discredited as were also acetone, diacetic acid and various other substances. He said that he had seen a case of ileus showing the immense increase in coloring matter characteristic of that condition and yet yielding no diazo, and that there was at present in the City Hospital a case of supposed appendicitis with marked increase of indican and no diazo.

The important question is not as to the pathognomic character of Ehrlich's diazo, which no one would maintain, but as to whether it is constant in typhoid fever. This he believes has been amply proven by all who have properly applied the test. It occurs occasionally in the septic stage of pulmonary tuberculosis, in some cases of carcinoma and he believed in some cases of exanthematous disease. In septicæmia, *if profound*, we may find a beautiful reaction. But in the misleading febrile diarrhœa, malaria, pneumonia, acute miliary tuberculosis and appendicitis it is absent if his method be used, and its differential value is therefore very great.

Dr. **John T. Rogers** read a paper on

TUMORS OF THE JAW.

See page 70.

Dr. **DeWitt**: I think the danger of excising the upper jaw is somewhat greater than Dr. **Rogers** has given it. One of the greater dangers is from the patient inhaling the blood and dying of a pneumonia. This can easily be prevented by performing a tracheotomy beforehand. I have seen two cases reported that have been much improved by ligation of the common carotid artery. It is advocated by some to use the toxines of erysipelas in these cases, but I think that it has no value.

Dr. **Renz**: I think it rather useless to perform a tracheotomy; simply place the patient so that the head hangs over the end of the table.

Dr. **Rogers**: I believe these growths of the upper jaw to be very common and often neglected. I have seen some cases recently which were under the care of the nose and throat specialist. The true condition was not recognized. I do not believe tracheotomy necessary. The deaths which I have seen after the operation have been due to meningitis and so-called shock.

MISCELLANY.

OBITUARY.

P. H. Millard, M. D.

The Faculty of the College of Medicine and Surgery of the University of Minnesota records with sincere regret the untimely death of its Dean, Doctor Perry H. Millard.

In his death a loss is sustained not by this Faculty alone, but by the medical profession of the State of Minnesota and by the cause of medical education throughout the country.

He was a self-made man, of large natural resources, of indomitable energy and perseverance, of unswerving devotion to his chosen purposes. And those purposes had, at heart, the good of his profession.

To that profession he devoted twenty-five years of his life—achieving an enviable success in its service. He filled many positions of trust with faithfulness and places of honor with modesty.

His services to the State of Minnesota are written upon her statute books and in the history of her medical institutions.

He was the author and inspirer of the laws which have governed the practice of medicine in the State and, particularly, of that progessive measure known as the Minnesota Medical Practice Act, which has become the type of legislation for over half the States of the Union.

He was one of the most active organizers and promoters of the American Medical College Association, a body which has done much to elevate the average standard of medical teaching in this country.

His most signal service was in the projection, organization and development of the Department of Medicine of the University of Minnesota. It was in his brain that this institution, which has taken rank among the foremost professional schools of America, first took shape. It was his influence which secured the surrender of the charters of those private colleges which united in its establishment. It was largely through his unceasing labors and his persistent enthusiasm that it was placed upon the University campus beneath the roof of Medical Hall. It was his first ambition, his daily duty, his well justified pride to forward its interests throughout the years of his fatherhood of its Faculty.

He passed from its immediate service under the inevitable compulsion of a death warning he had too long refused to heed, to a death summons which commands the sorrow of his associates and inspires this memorial "to the duty he has wrought."

Cyrus Northrop, LL. D., President.
John F. Fulton, M. D.
Parks Ritchie, "
R. O. Beard, "
A. W. Abbott, "
C. L. Greene. "
H. M. Bracken, "
Committee.

NOTES.

Dr. Achilles Rose, 214 Sec. Ave., New York: I wish to say that "Sander & Sons' Eucalyptol" is of great service in cases of circumscribed headache, occipital neuralgia especially. I saw in malaria of long standing and in incipient phthisis excellent results.

THE TREATMENT OF GONORRHŒA BY ARGONIN INJECTIONS IN 26 CASES.

By J. W. Daniel, M. D.

Houston, Texas.

Argonin is a combination of silver with the casein of milk, occurring in the form of a white amorphous powder, soluble up to ten per cent. in hot water; fifteen parts of argonin contain as much silver as one part of silver nitrate; unlike this latter drug, however, it is not decomposed by albuminous substances, nor is it precipitated by sodium chloride. It is also claimed for it that it does not irritate the urethral mucous membrane, even in concentrated solution.

The truth of this latter claim I have demonstrated to my entire satisfaction, as in none of my twenty-six cases (twenty of which were in the acute stage) was there any complaint of pain or irritation of the canal; on the contrary, the scalding of the urine quickly disappeared, and the inflammation rapidly subsided. Chordee was complained of in one case only, disappearing within twenty-four hours after beginning the use of the remedy.

A careful observation of each case, with a daily examination of the discharge, shows that in the 20 acute cases the gonococci disappeared entirely from the fourth to the sixth day after the commencement of treatment. In one case the gonococci disappeared on the second day, in 13 on the fourth day, in 2 on the fifth, in 3 on the sixth, and in 1 on the seventh. Argonin was employed in the strength of 15 grains to the ounce of water and from six to eight applications were made during the 24 hours. From my experience so far, I am convinced that the efficacy of the remedy is not to be gauged by the strength of the solution used; in other words, a 10 per cent. solution is no more efficient in destroying the gonococci than a 5 per cent. solution. The method I have adopted of using the weaker solution from six to eight times a day is much more effective than making one application a day of the stronger solution. It is almost impossible to bring the medicine into contact with the entire diseased surface in one application, or for that matter in several applications, or reach the intricate hiding places of the gonococci after the most careful procedure. My plan is to use the ordinary penis syringe for the first three or four days, after this, while still continuing the use of the smaller syringe, I use once or twice a day a long nozzled instrument reaching to the posterior urethra, with which I make applications to the deeper structures and direct the patient to retain the injected solution for eight or ten minutes. After the discharge had subsided, which occurred about the seventh day in the majority of cases, the injection was continued for six or eight days as a precautionary measure. The moment all strings or mucous threads (tripper-faden) disappear from the urine, I conclude that the disease is thoroughly cured and the patient may discontinue the remedy.

I have also employed argonin in six cases of gonorrhœa complicated by posterior urethral conditions and strictures, the results of former attacks. The strength of the solution used in these cases was from 8 per cent. to 10 per cent. In each case the most flattering results were obtained, the discharge ceasing after six or seven days' use of the remedy, the gonococci disappeared in a few days, and there was every indication that a cure had been effected, but after the remedy had been discontinued for a short time, the discharge reappeared, and while all the symptoms were modified in their character, there was still present the evidence of the disease. From my observations so far, I feel confident that in uncomplicated cases of acute gonorrhœa, argonin will relieve all those distressing symptoms incident to the first stages of the disease, and effect a complete cure in from twelve to eighteen days.

I am more than satisfied with the results so far obtained from the use of the drug in acute urethritis venerea, and hope the experience of other practitioners will be equally as satisfactory and gratifying as mine has been.—*American Therapist.*

Dr. A. M. Martin, Lake Odessa, Mich.; I use frequently "Sander & Sons' Eucalypti Extract, Eucalyptol," and can find no single remedy its equal in gonorrhœa and leucorrhœa, one part to four of water. I also employ it in cases of ophthalmia and may state that it works like a charm.

MISS BAKER'S PRIVATE SCHOOL

For Special Training of

NERVOUS AND BACKWARD CHILDREN,

to be located near the Twin Cities, will be open about the

FIRST OF MAY, 1897.

Address Miss Laura Baker,
Faribault, Minn.

LECTURES AND ADDRESSES.

EXPERIMENTAL THERAPEUTICS.

An Address Delivered before the Minnesota Valley Medical Association, December 1, 1896.

By O. C. Strickler, M. D.

President of the Association.

Rational medicine can rest permanently alone upon pathology and its twin sister therapeutics. We have, I trust, passed out of the stage of believing that because pathology should point in a certain direction for the cure of disease, that this pointing would necessarily be infallible; for we must follow the teachings of science to her farthest limits before positive conclusious can be reached. I am well aware that pathology is the foundation upon which the superstructure, therapeutics, is erected; but the foundation, although absolutely necessary, is of little importance without its accompaniment. In Europe, in former years, it appeared to me that much more import was laid upon pathology than the subject deserved; but they were only digging down into the unknown, removing the mould and dust of ages in order that the truer light of bacteriology might shine in, and that a firm superstructure could be erected thereon; and the great strides made in the last few years in the field of specific medication and serum therapy are direct results of the preceding researches in pathology. The danger of accepting pathological deductions without therapeutic experimentation and clinical demonstration was shown clearly and forcibly in tuberculin; for seldom has a remedy been received with such enthusiasm, and rarely has the profession attempted to be satisfied with a new departure in the treatment of disease before making clinical tests, than was the case with this remedy, and many were the essays written to prove that the claims of science, and more particularly those of pathology, had been fully met, and even if they were true, after we have finished theorizing the final test must be at the bedside; for, although our theories may be brilliant, if they are not endorsed by practical experience they must be laid aside. The teachings of pathology today, as previous to the discovery of tuberculin, point in the same direction in the cure of tuberculosis, and we must continue our search until success crowns our efforts. The benefits to be reaped from the discovery of tuberculin are diagnostic rather than curative, and it is to be hoped that this use of the remedy will be extended until all cattle used for dairy purposes have withstood the inoculative test. The profession are, however, waiting anxiously for the researches of Paquin, in the hope that the use of tuberculin may still further be extended into the field of practical therapeutics. Since the discovery of the diphtheria antitoxine many, thinking that the claims made for it were exorbitant, refused to experiment with it, thinking that it, too, would be compelled to walk the gang-plank of professional disapproval, and many, even today, stand back and cast disapproving glances whenever the profession applauds the brilliant cures made by this great specific, forgetting that practical tests, and these alone, can determine what remedy shall be used and which discarded, and also forgetting that after the experimentalist has announced something which may seem to contain value, that here is where the general practitioner is expected to assist to form the verdict of true worth or disapproval, while others, like Winters, produce case after case where death has occurred after the use of antitoxin, but always in connection with some complication, as intubation, a proceeding which is as yet not settled in the minds of the profession in cases of stenosis occurring in the disease in question. Sentiment can have no place in pure science, and the medical man of today should be open to conviction and truth, no matter from what source it may be, if he expects to keep in sight of the bandwagon of advancement. During the last year many new agents have been introduced, some of value, and such have their place, while many will be finally thrown into the heap of discarded hopes; but enough has been demonstrated to show that we are again on the eve of still greater discoveries, which will lead us still further into the field of serum therapy and specific medication. I do not wish to imply that serum therapy of the twentieth century be necessarily that of the present, as it would seem that some of the curative action of the serums used rather than entirely to the antitoxine; and, indeed, many advocate the use of the blood of immune animals instead of the former, and it certainly furnishes a rich field for further investigation.

Within the last year, in the capacity of health officer, I, with the assistance of our veterinary surgeon, Dr. E. Mueller, experimented with a sample of antitoxine made by Dr. Valin in the St. Peter laboratory for the cure of hog cholera, a disease which has wrought so much financial loss to the farmers of the northwest.

The bacillus of hog cholera was discovered by Determs in 1880, and is a small, short rod resembling the germ of chicken cholera, although on some media, as gelatin, it may be found as a long body; and another fact of interest and import as well is that artificial cultures retain their virulence apparently indefinitely, similar to the anthrax bacillus, so that neighborhoods where the disease has raged this last season will very probably be visited again the coming one. Hogs, mice, rabbits and guinea pigs are highly susceptible to the action of this germ, while pigeons are less susceptible, and chickens, calves and sheep are immune. The fact that certain animals are naturally immune to not only this but other virulent germs, would seem to substantiate the theory that some substance must exist in the blood of those animals which, as yet, has not been isolated; and we may therefore hope that the near future will reveal its true character and composition.

Paquin states that the less natural immunity that an animal possesses the greater the value of the antitoxin produced by immunization. He further states that immunity may be increased in an animal by injections of toxalbumins, and still further exalted by injections of living cultures into the circulation, the whole period of daily or alternate injections covering from three to nine months. One-fourth cc. of bouillon of hog cholera culture injected subcutaneously into rabbits causes death in about four days. We find, however, among the animals taken with the disease that frequently a double infection occurs, as in so many diseases of the human family; hence we find in some epidemics and seasons that most of the hogs die of pleuro-pneumonia rather than from the effect of the cholera proper, similarly as occurs in diphtheria and tuberculosis and other acute conditions, where are found the staphylococci and streptococci, which fact renders the production of an antitoxine for the double infection of much difficulty. Some of the New York investigators are experimenting with a serum from an animal which has been previously rendered immune to both germs, as occurs in diphtheria. If this can be produced, it can easily be seen that more results will be produced than from the antitoxines now in the market. It appears to me that in tuberculosis the fact of a double infection is of great importance, as from a brief experience with nuclein and the pneumonia antitoxine the germs aimed at are seemingly diminished in numbers, but the development of the staphylococci and streptococci is not effected. The hog cholera antitoxine now manufactured is necessarily a single serum; hence the treatment should be institued early, before infection has occurred and by all means before the pulmonary symptoms have presented. De Schweinitz, of Washington, has done much original work in this disease, and many of the statements made in this paper are from his report; indeed, I quote freely from a late paper of his which has just appeared in the *Centralblatt*, a journal devoted to bacteriology and the study of infectious diseases. De Schweinitz, as early as 1892, showed that guinea pigs could be rendered immune by the injection of serum from other guinea pigs which had previously been rendered immune, and the same result has been shown in rabbits, although the amount of serum injected must be larger than with guinea pigs. After this was demonstrated the way was clear for experimentation with the domestic hog, and here, too, it was shown that serum from an immune hog would protect others injected. De Schweinitz makes this statement in his report: "My experiments show that an immunizing substance is produced in the blood of the protected hog; that while the animal itself may remain immune to the disease, as shown by experiments with guinea pigs, its blood will have been found to have lost the power of conferring immunity to other animals. This confirms the conclusions reached in other diseases in the use of blood serum, that the immunizing principle of the blood serum can only be kept up by having the animals inoculated from time to time. Apparently the antitoxic substance can be the result of cell activity only. As long as the animal is kept inoculated with the toxine germ the immunity of that particular animal not only continues, but the antitoxic substance is found in the blood. After some intermission the antitoxic substance is not found in the blood, or only in small amount, but the immunity of the individual still continues. In the use of the antitoxic serum, therefore, its efficacy lies probably in the fact that, counteracting the poison first produced from the germ, it gives the cells opportunity to recover their temporarily weakened activity, and supply more antitoxic substances. The experiments proved that the serum of immune hogs can produce immunity in guinea pigs, and that there must be a distinctive antitoxic substance formed."

He has also shown that a cow injected with either the germ of hog cholera or swine plague will furnish an antitoxine which will render hogs immune from the diseases named; but, as in diphtheria, the inoculations must be repeated frequently to spur the cells to renewed activity in the production of the antitoxic substance. I have a specimen of the hog cholera germ under the microscope —a specimen of the pure culture. I will mention, however, that there is some difference of opinion among experimenters what really causes the pneumonia, the hog cholera germ proper or a diplococcus. De Schweinitz is positive that the pneumonia is caused by a second germ, although the hog cholera bacillus is found not only in the lung but also in other parts of the body. Within the last year great progress has been made in the preparation of these antitoxic serum preparations; for instance, some experimenters have been working with an antitoxine which was produced by taking a pure culture in bouillon, and instead of injecting this into an animal for the production of the antitoxine, have passed strong currents of electricity through it, killing the germs, and then have used the solution in the same manner as the usual product. Of the serums with which I experimented both products were used, the animal and the electrical. If the latter proves a success (and from the brief experiments made it would seem probable), the antitoxic products can be manufactured much more rapidly than formerly, and necessarily much cheaper. In the first herd thirteen were injected September 27, ten in the early stage and three hopeless ones. Of the former one died on the fourth day and the remainder all recovered. Of the three seemingly hopeless cases one recovered. On the second of October sixteen more were injected, making a total of twenty-nine in this herd, with four deaths. This same farmer had lost previously during the same epidemic about thirty head. In this herd the electrical product was used. In the second herd twenty had already died before treatment was commenced. Here we tried an immunizing injection of the antitoxine on nine head, with the result that none of those injected became sick. Of three sick which received the injection one died. In a litter of small pigs four received the immunizing treatment with no deaths, not even becoming sick, while of six already infected three died, making in all thirteen head receiving immunizing injections and all remaining healthy, while of nine sick which received treatment four died. It would appear from these brief experiments that immunization is much more efficacious than treatment after the animal is already infected, and this agrees also with other reports which have come to my knowledge. My object in reporting these brief experiments is that the coming legislature should be induced to grant enough support for the manufacture of these products, so that a thorough test may be given in the treatment of this prevalent disease in the hog. Should these new departures prove of as much value as some are led to believe, it might lead the public as well as our legislators to look somewhat more favorably on the great advances of the day as well as on our state institutions, as the St. Peter hospital, where so much original work is being done. And if this Society can be the means of assisting the movement, they would not only aid in scientific progress, but would be also assisting a very worthy movement.

ORIGINAL ARTICLES.

THE CONSTITUTIONAL EFFECTS OF THE IMPROPER FEEDING OF INFANTS AS EXEMPLIFIED BY INFANTILE SCORBUTUS.*

By J. W. Dudley, M. D.

Minneapolis.

It is with some misgivings that I ask the attention of the Academy for a few minutes to the humble subject of infantile feeding. If any apology is needed for turning aside from the more absorbing topics of ventro-fixation, vaginal section and others especially popular just now, it is found in the fact that while the mortality from the conditions requiring these procedures is probably not over six per cent. of all deaths, that from diseases of nutrition in infants is over twice that number. A certain lack of picturesqueness in the subject is probably largely accountable for the readiness with which the family physician has in the past so often relegated his authority in the matter of the baby's diet to almost any interested neighbor or solicitous grandmother. But of late, largely through the persistent efforts of such men as Rotch, Starr, Meigs, Holt and Freeman, the subject of artificial feeding has come to occupy *the* most important place in the field of infant therapeutics.

As a result the subject of the artificial feeding of infants was never as great as at the present time. But in the rush of scientists and capitalists to devise a universally applicable food for infants, the pendulum has swung so rapidly between what may be called ultraempirical and ultratheoretical methods, that at present there is scarcely a subject upon which the doctor is called to give advice in which there will be less uniformity of opinion and practice. Many of the foods evolved during the past decade have proved extremely valuable, meeting the digestive requirements and doubtless saving infantile life. But we have only recently learned that more is to be required of a food suitable for an infant than this. We have learned that there is a class of cases in infant pathology which begin insidiously, and which, to the eye of the mother, present no symptoms suggestive of a faulty food supply, so that, unless recognized by the medical attendant, the real cause is not likely to become apparent. The most typical of these affections, and the one most clearly dependent upon bad feeding, is scorbutus, including the condition sometimes called acute rickets. In this paper I wish to call attention to the dangers of many of the most common varieties of infant foods in view of our present knowledge of the prevalence and nature of infantile scurvy, and to enter a plea for the use of the more rational food, modified cow's milk, as opposed to the hopelessly unprogressive method of resorting to the empirical use of the numerous proprietary foods presented to us so generously by the traveling physiologist.

The advocates of proprietary foods have had one argument which, were it the whole truth, would appeal to every practitioner as a sound one; and that is, that theory to the contrary notwithstanding, certain patent foods, each of which has its own advocates, have in many instances fulfilled all the requirements of nutrition, and carried the baby safely through its infancy with a minimum annoyance to the physician and a maximum of satisfaction to the parents; and this being the case, it ill becomes the doctor to speak disparagingly of this food. But the question is not as simple as this would seem to indicate. It is a question of an effort in the line of exact knowledge of the requirements of an ideal infant food as exemplified in mother's milk, and of clear thinking in applying this knowledge in the construction of the closest imitation of mother's milk attainable, with variations from this standard to any degree required by the exigencies of the individual case. In this way only is it possible for the practitioner ever to get upon a basis on which substantial additions to our practical knowledge of infant feeding can be hoped for.

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* Read before the Minnesota Academy of Medicine, February 3, 1897.

To show how strenuous are the efforts of the manufacturers of prepared foods to attract the attention of the profession and to dispose of their wares, permit me to quote from the circulars of a few of the most prominent foods in the market, the remarkable claims made by each. The names of most of these foods are familiar to us all as household words.

"Ridge's Food still maintains the lead as best suited to all classes and conditions of child life." Another advertisement asserts that it "beats nature as a nourisher for children." Benger's Food: "This delicious and highly nourishing food is quite distinct from any other attainable." Fairchild Bros. & Foster's Peptogenic Milk Powder "yields a food for infants which is pronounced by the highest medical authorities the best physiological imitation of mother's milk." Imperial Granum: "An incomparable aliment for the growth and protection of infants." Milkine: "It is absolutely the first and only substitute for mother's milk." Nestle's Milk Food: "The only food to which a mother anxious to bring up her child ought to have recourse." Malted Milk: "For infants Horlick's Malted Milk stands next to mother's milk. * * * It is complete in itself." Mellin's Food: "The only perfect substitute for mother's milk. Recommended by the highest medical authorities in Europe and America as the best food for infants." Carnrick's Lacto-Preperata: "Whoever is looking for a perfect substitute for mother's milk need not make any further investigations, for a nearer approach to human milk cannot be made." Carnrick's Soluble Food: "The only food for infants (except Lacto-Preperata) which contains all the constituents necessary to their perfect nourishment."

Such quotations might be greatly extended, but these are sufficient to illustrate the extravagant claims which the various proprietary foods are making in order to attract the attention of the profession and the general public. That the ever increasing variety of patent foods varying so essentially in their composition can find a sale largely at the recommendation of the profession, bespeaks either much indifference as to what a normal infant needs, or a lack of confidence in the foods previously used.

In advocating a more general use of modified cow's milk as the most suitable substitute for mother's milk, I would not be understood as summarily condemning proprietary foods. If they have any place in the infant dietary it should be during some temporary alteration of the normal condition of the infant, as when milk cannot be had, or, perhaps, during some temporary derangement of digestion.

There are several methods of modifying cow's milk so as to make it approach to the proportions of the various ingredients found in human milk. In the principle involved these methods are all the same, viz: dilution, in order to bring the albuminoids from four per cent., the amount present in mixed cow's milk, down to one and one-half or two per cent., the amount present in ordinary human milk, followed by an addition of enough cream of known richness in fat to raise the fat in the diluted mixture to about three and one-half per cent., which is nearly the same amount as existed in the cow's milk before diluting the albumenoids. A definite amount of milk sugar is then to be added in order to bring the proportion of sugar back to the proportion existing before dilution. To this mixture is usually added a definite amount of lime water or bicarbonate of soda to render the mixture faintly alkaline. Such a food is not identical with human milk, but it is the nearest approach to human milk which is practicable with our present knowledge. Time will not permit an adequate description of the various simple methods of accomplishing this modification. I have never found a mother too ignorant to carry the directions out perfectly when carefully instructed. In condemning modified cow's milk as not agreeing with many children, one should bear in mind the fact repeatedly insisted upon by Dr. Rotch that modified milk is not any particular combination. The quantities of albuminoids, fat and sugar are susceptible to an almost infinite number of modifications, and if the ordinary proportions disagree the argument is not against modified milk, but against that particular proportion of ingredients which has failed. I have known of an infant thriving on half of one per cent. albuminoids after many failures with the ordinary higher percentage.

Milk thus modified for infant feeding has obtained great popularity in those communities where it is most used. The criticism which in some quarters has been made on the compounding of milk on the basis of a careful consideration of the need of the individual infant in respect to albuminoids, fat and sugar are fully met by the success which the method has obtained when persistently and intelligently carried out, and the fact that it involves a little more exactness of thinking than the empirical use of proprietary foods, is certainly not a good reason for comfortably setting the method aside among those things which are good in theory but impracticable.

But, aside from these perhaps rather vague objections to proprietary foods, there is, I believe, a more specific charge to be brought against them. It is not a new observation that bottle fed infants not infrequently take a sufficient amount of food and digest it well, and in spite of this fact begin to show toward the close of the first year evidences of impaired nutrition. The most common form in which this state appeared was rickets, a disease appearing most commonly among the poorer classes. In Germany a condition resembling rickets in some respects, but attracting attention suddenly and occurring usually among the well-to-do, was described as acute rickets. Later this anomalous form of rickets was recognized by Cheadle in England as true scurvy engrafted upon a rickety stock. Five years later Thomas Barlow, in 1883, reported thirty-one cases, and in 1894 thirty-three cases more, at which time he described the disease in detail in his classical Bradshaw Lecture.[1] In this country Barlow's disease, as the Germans call it, was introduced to the profession by Dr. W. P. Northrup, of New York, in 1886. Three years later 106 cases were reported to the New York Academy of Medicine by Drs. Northrup, Rotch, Holt and others. Thus it will be seen that when once the attention of the profession was called to the real nature of this form of malnutrition, cases began at once to be recognized on every hand by those who were looking for them. After going over the literature of the subject which has grown to surprising proportions in the seven years which have now intervened since the disease was first brought to the attention of American physicians, I estimate that not less than from two to three hundred cases have been reported in this country alone. Add to these the large number of cases recognized but not reported, and the doubtless still larger number unrecognized, and we can hardly consider the disease as too rare to merit careful attention as to diagnosis and prophylaxis.

The classical descriptions of scurvy are too well known to make a detailed account of the infantile form necessary here. The disease as seen in infants varies somewhat from that formerly common in adults, but not more so than is usual in diseases to which both adults and infants are subject. All of the many works on diseases of children published during the past six or seven years contain descriptions of the disease. The main features are pain and tenderness of the limbs, especially the legs, spongy or bleeding gums around erupted teeth, pallor, and later pyriform swelling of the long bones, especially the femur, from subperiosteal hemorrhage, proptosis, and sometimes hemorrhage into the skin from mucous membranes. Besides the fully developed cases there is doubtless a class of partly developed cases occurring still more often, and the fact that we see so comparatively few fully developed cases, is due to the antiscorbutic diet supplied to the child in the natural course of its growth before the improper food supplied has had time to develop fully the scorbutic state. That this is the real explanation of the escape of so many infants who are fed on a scurvy-producing diet is strongly indicated by the fact that the disease rarely develops in a child under eight months, even if fed on a food known to be scurvy-producing; and by the further fact that a change to a raw milk or a more varied diet invariably results in rapid recovery. In addition to this it must be admitted that there exists in some cases some kind of a predisposing cause making some infants peculiarly susceptible to scurvy. This cause may be rickets, tuberculosis, syphilis or some indeterminable cause. But the occurrence in several instances[2] of scurvy in one only of a pair of twins, both being under precisely the same conditions, emphasizes the fact that one cannot anticipate the development of the disease, and must be on guard against it in all infants fed on a food known to be scurvy-producing.

The diseases for which infantile scurvy have been mistaken are many, and include fracture of the femur, infantile paralysis, sarcoma of the femur, sarcoma of the eye ball, sarcoma of the gums,[3] ostitis, rickets, purpura and acute rheumatism.[4] The last is the complaint for which the attendant is most apt to be summoned, so that Northrup lays down the rule "if the mother says rheumatism of the legs and you find spongy gums, that is scurvy."[5]

As regards prognosis, fully developed scurvy is fatal, unless there is a change of diet. In uncomplicated cases nothing else is needed to produce a rapid recovery where irreparable injury has not been done, and, as had been said, partially developed cases often recover by incidental changes in the diet without any suspicion on the part of anyone concerned as to the cause of the existing malnutrition or what it was which produced the cure.

In answer to the question what constitutes an antiscorbutic diet, there seems to be but one safe answer, viz: milk modified as to the proportions of its essential ingredients so as to meet the digestive requirements of the individual infant, and unaltered in its nature by exposure to too high a temperature in the process of sterilizing. There is no question that the artificial feeding of infants is on the increase. Mother's milk, when of good quality, does not produce scurvy, though a few cases have been reported in which an infant kept for some time at the breast after the proper time for weaning has contracted the disease.[6] It is, however, a matter of increasing necessity for mothers of the better classes to bring up their babies by hand. In fact it may be seriously questioned whether, in the process of the evolution of woman, the mammary appendages have not reached their highest state of development and begun the retrograde process, as is said to be the case with the eye, so that the complete new woman shall, in this respect also, degenerate to the masculine type. With this increase in artificial feeding there has gone hand in hand an increase in the variety and sale of proprietary foods, and despite the short history of scurvy an undoubtedly rapid increase in the frequency of this disease. In answer to the question is there anything noteworthy of late years about bringing up the well-to-do class, Dr. Barlow remarks "it may be safely stated that, besides the increased difficulty of getting the mothers to nurse their infants, there has been an enormous increase in England and America in the employment of proprietary infant foods."[7] Dr. Northrup, as the result of a very extensive experience with the disease, says "the experience of most observers agrees with the facts here presented: that the exclusive use of proprietary foods or of evaporated milk is a most common accompaniment of scurvy."[8] In fact nothing is more conspicuous in the whole literature of scurvy than the close relationship which is everywhere apparent between it and proprietary foods and condensed milk. Many cases "have an early infancy with much stress and storm in the way of digestive disturbances, the artificial food upon which they have been nourished is a sort of survival of the fittest, as being the one attended with the least diarrhœa and vomiting, and it is while assimilating this food that scorbutic symptoms have developed."[9] This quotation from Barlow's lecture is admirably illustrated by the following case which I saw a year ago through the courtesy of Dr. Thomas S. Roberts, in whose practice it occurred: A girl, whose mother had no milk, was put on Mellin's Food and mixed milk for a time, but as numerous boils appeared under this combination, Nestle's Food without milk was tried as a temporary expedient, and later milk was added. This not being satisfactory, milk prepared with peptogenic milk powder was substituted and continued for several months. At about one year of age typical symptoms of scurvy developed which rapidly became of a rather severe grade. The disease yielded at once to antiscorbutics and cow's milk.

In the reported cases of scurvy, while the use of proprietary foods and condensed milk is in a large proportion of the cases affirmed, the name of the individual food used is so often omitted that it is impossible to state just what food has most frequently been productive of the disease. As stated by one observer that food which is most in use in any community most often brings scurvy. In the discussion of the subject before the New York Academy of Medicine[10] Mellin's Food received as great a distinction as any. In a reply to a personal letter on this point one of the most prominent specialists in pediatrics says that Mellin's Food, Malted Milk and Carnrick's Food have been most often the cause in his experience. Among foods which I find particularly mentioned in the reported cases are Nestle's,[11] Ridge's and Chapman's Wheat Meal,[12] Nestle's and Savory's,[13] Savory's and Morris',[14] Lacto-preperata,[15] Malted Milk,[24] Mellin's and condensed milk,[16] Evaporated Milk and Lactated Food,[17] Imperial Granum and others. Condensed milk alone is a frequent cause. It must be insisted upon that the use of part cow's milk in connection with a proprietary food as Mellin's gives no security against the development of scurvy. Among the cases of which I have personal knowledge one was having Mellin's Food and cow's milk with one egg daily. It should be borne in mind that in some of the cases developing upon proprietary foods made up with cow's milk doubtless the mixture is scurvy-producing, because, when made according to the directions, it is practically only an improperly modified cow's milk, and improperly modified cow's milk has itself been the cause of scurvy in a considerable number of cases.

The testimony of those who have seen most of this disease is unanimous that proprietary foods must be avoided if scurvy is to be eliminated from infant pathology. Probably the profession will not entirely agree with Dr. Joseph E. Winters in the statement that "there is no possibility of any baby being properly nourished on condensed milk or any artificial food on the market;"[18] but Sutherland clearly expresses the conclusions of all observers that as a prophylactic measure "all varieties of preserved milk are to be absolutely forbidden along with the different proprietary infant foods."[19]

In view of the entire absence in the literature of scurvy of any cases, so far as I can discover, fed on properly modified cow's milk, raw or Pasteurized, and of the almost certain cure of all cases when put on such a diet, we may safely conclude that scurvy will not occur when this diet is used. In reply to a personal question on this point addressed to five of the best known authorities in this country, the invariable testimony was that no case of scurvy has occurred when properly modified raw or Pasteurized milk is used.

Whether scurvy is caused by milk sterilized at 212 degrees is a debated question and one of great practical importance. Rotch says, "in my experience there is no evidence that sterilized milk is the cause of scurvy,"[20] and Winter has reported several cases of recovery by changing from proprietary food to milk sterilized at 212 degrees for twenty minutes only. On the other hand, the danger of scurvy from complete sterilization has been insisted upon by many competent observers, and is set down as an occasional cause by nearly all, including Northrup, Holt, Townsend and others. Starr[21] reported five cases on milk properly modified and sterilized, all of which recovered on the same diet unsterilized and with the addition of beef juice and orange juice. The accumulated evidence indicates that sterilization at 212 does occasionally, though probably rarely, induce scurvy.

As the germs of all common diseases are destroyed by a temperature of 160° F. or less for twenty minutes,[22] and as this temperature is not sufficient to destroy the antiscorbutic property of milk, we may conclude that a higher temperature than this is useless as a means of preventing infection and exposes the child to a risk of contracting scurvy. Time will not permit an account of the various simple methods of Pasteurizing milk without the use of the thermometer. One of the simplest appliances for this purpose is that devised by Dr. Freeman, of New York, and described in full in the Archives of Pediatrics of the present year.[23]

Without entering upon the vexing and intricate theoretical questions connected with infant feeding, the points which I have desired particularly to emphasize are the following: Infantile scurvy is not a rare disease and it is increasing in frequency; it is a disease depending upon improper food; condensed milk and proprietary foods, even when diluted with cow's milk and unsterilized, have been the food upon which the disease has developed in the vast majority of the reported cases; in modified Pasteurized cow's milk we have a food which is absolutely nonscorbutic; this food can be made to agree with practically all infants; the dangers of scurvy are too real to warrant the use of any other food except as a temporary expedient.

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THE PRELIMINARY EXAMINATION OF SURGICAL PATIENTS.*

By W. J. Mayo, M. D.

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"Paget says that every patient should be as carefully examined before operation as for life insurance, and that this examination will often reveal contraindications of vital importance to a procedure which might otherwise be for the best interest of the patient."

Operations of necessity, such as for the relief of traumatisms, malignant disease and the later results of infections formed the bulk of the work of the clinical surgeons in days gone by; then, as now, the urgency of the case demanded attention without much regard to surrounding conditions.

Operations of expediency, which today supply the great body of our clinical material, are entirely different in their nature and conception, done for the relief of conditions which may not prove fatal and with the idea of rendering life more comfortable and useful. They therefore demand maximum good results with minimum risks. Our responsibilities are far greater and our failures fatal to the best interests of our patients and most humiliating to ourselves.

How much greater our chagrin when the failure did not lie in the operation itself, nor in our ability to meet the indications, but rather that we had overlooked some element in the personal examination of the patient: that he was a hæmophiliac, had chronic interstitial nephritis or an acute bronchitis. That the operation was a success but that the patient died from other troubles does not help us out. Unfortunate experience of this character, days of anxiety, and final disappointments have convinced me of the absolute necessity of a more thorough preliminary examination in fitting the operation to the patient, not to overtax his vital resistance nor overlook contraindications.

In the face of grave danger no conscientious surgeon would fail to give his patient the benefit of an operation, yet with how little conscience do we sometimes subject our patient to imminent danger of life by examining the surgical indications only, and leaving the general condition to chance. I recollect an old practitioner saying to me once about Chicago surgeons of ten years ago, that Gunn was a great operator but Andrews had surgical instinct.

Ashurst, of Philidelphia, is not a good operator, but his students will speak of his results. It must be confessed that this surgical judgment is a complex affair, yet I am of the opinion that a thorough understanding of the vital resistance of the patient may contribute as much to the good results as the much more studied technique.

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*Read before the Minnesota Academy of Medicine, February 3, 1897.

It would be impossible in a fifteen minute paper to do more than touch upon a few points to be ascertained in this examination, and to discuss briefly the variations in the ordinary routine of operative relief which they indicate. The majority of our surgical patients can be examined as to their general fitness for operation with little loss of time, but patients who differ much from the ordinary standard require more careful examination. Extremes in size, either very large or very small people, or people who are excessively fat, not only render operation more difficult but often are less resistant to infections and necessitate more than ordinary care. Several surgeons in the Twin Cities have remarked to me that Scandinavians bear operation badly. It is recent immigrants to this country who do not do well at times after operation, and as much of our foreign element in this State is Scandinavian, this factor is of consequence. It has seemed to me that recent immigrants of all nationalities are more vulnerable. Americans, born of Scandinavian extraction, in my experience do well. Nationality undoubtedly has some relation to vital resistance. The more ancient the civilization the greater the resistance to obligate microörganisms. This is less true as to facultative bacteria. Many races of people have acquired a considerable degree of immunity from the diseases common to their locality, and the greater the variation between this hereditary environment and the new surroundings, the less the resistance. Other things being equal, age bears operation better than infancy. I have often seen great resistance in aged people subjected to severe operations. Women bear operations better than men, and menstruation is not so considerable an element as to the time of operation as we have heretofore thought. Chronic alcoholics bear anæsthetics badly; morphia hypodermically administered and chloroform anæsthesia best controls the muscular tremors so hard to subdue, and I believe is less apt to produce traumatic delirium tremens.

The nervous system. For a number of years it has been our fortune to do a good deal of operative work among the insane, both at the Rochester State Hospital for the Insane and also at the St. Peter Hospital. Chronic insane who are not of filthy habits do equally well with the more intelligent members of society. I believe that unruliness is less frequent than has been thought. They are used to confinement and not uncommonly their sensibilities are blunted, consequently suffer less pain.

Insane of filthy habits are extremely liable to post operative infections, both autoinfection through the blood current and from the deeper layers of the skin. The sebaceous glands have been shown to be the habitat of the pyogenic organisms, rather than the sweat glands, and in filthy people the sebaceous glandular system is irritated into excessive action and often inflammation. Many people, apparently extremely robust but of phlegmatic temperament, do well after operation to a certain point, but the line of apparent favorable progress and imminent danger is a narrow one, and let that line be crossed, and they seem to to have no power of recuperation. People of very nervous habits most often exhibit wonderful powers of resistance.

The lungs. In my own experience unexpected danger has appeared most frequently in the lungs, although the heart or kidneys may primarily be at fault, and this has often come through the anæsthetic. I now practise giving the anæsthetic only when the preparations for operation are complete and always in the operating room, not in an adjoining room of different temperature. This has been a rule to which patients have objected much less than would be thought. I have learned to protect the body and chest carefully with flannel throughout the operation and to beware of ether during acute colds, bronchitis with free excretion, etc. Chronic tubercular processes in the lungs, if not accompanied by profuse expectoration, do well with ether. I have noticed in such cases subjected to operation for other conditions a gain greater than would seem to be expected from the local results of the operation itself.

Biers has shown that chronic congestion of joints artificially produced like chronic pulmonary congestions, are unfavorable to the growth of the tubercle bacillus. Perhaps ether may act in the same way. Chronic tuberculosis often seems to be greatly benefited by the removal of the primary focus of disease, although this local focus may of itself be comparatively unimportant.

The heart and circulation. A patient with valvular disease of the heart, if not too extensive and provided the compensation be good, will usually bear operation well. Ether is the preferable anæsthetic. Fleshy people with tendency to feeble circulation, the heart's action indistinct and evidences of venous congestion, are to be avoided as surgical cases when possible. They have a marked tendency to develop pulmonary congestion and broncho-pneumonia. High arterial tension most frequently results from kidney disease, and chloroform is the best anæsthetic. Almost all cases of heart disease are benefited by a hypodermic of morphia preliminary to the anæsthesia.

The kidneys. I take it for granted that all surgeons practise routine examinations of the urine before operation. Urine may contain albumen and casts, yet if the specific gravity is not low and the urine normal in quantity and with normal urea, operation may be performed with comparative safety. Many of the worst cases of kidney disease from a surgical standpoint may not show albumen nor casts in the urine. We should always be suspicious of low specific gravity when not due to nervous conditions, and especially so, if this is accompanied by high arterial tension and polyuria.

Under such circumstances the urine should be saved for twenty four hours to give the total amount. If possible sediment should be secured by the centrifuge machine and examined for casts. Careful examination of doubtful urine for urea is more important than testing for albumen. These cases of cirrhotic kidney often appear very well, and even to the most expert show little signs of disease; but shortly after operation, albumen, scanty urine and uræmia may appear with fatal results. In any case of doubtful kidney the catheter should be avoided after operation on account of the extreme danger of infecting the crippled urinary tract.

All cases of this variety should be taught to pass their urine in a recumbent position for some days before operation as advocated by Frenkel, and even some chances taken if necessary to allow them to stand or sit up for this purpose. It can be pretty definitely stated upon the researches of Eisendrath and others that upon the healthy kidney chloroform and ether act about the same, but on the diseased kidney chloroform is less harmful.

Alimentary canal. As a prerequsite to operation the removal from the alimentary canal of all excrementitious substances is universally recognized. At times it is impossible to quickly get the bowels to act freely. If the abdomen is tympanitic and the case is not urgent, I prefer to wait until this condition can be removed and the convalesence will be shortened more days than to wait, to say nothing of comfort. Personally I have not found it best to interfere with the ordinary form of diet to which the individual is accustomed for several days before operation as practised by many. It may be best to exclude many articles of an irritating nature, but it is a bad time to introduce dietetic fads. For some hours after operation digestion is delayed, and for this reason it is not wise to allow food for a number of hours before operation, which may ferment. As the long rest between food comes naturally at night, and patients are accustomed to this fast, operations upon an empty stomach, so to speak, are best borne in the morning, rather than an artificial abstinence from food during the day of the same length of time.

Time and space forbid further reference to this subject of autoinfections from the intestinal tract, but its importance cannot be overestimated.

Examinations of the blood. The importance of blood study is becoming more and more apparent as our knowledge of the microparasitic origin of disease enables us to pursue this investigation with scientific accuracy.

It has long been a clinical observation that certain individuals possess more or less immunity to the action of infectious diseases, and that this vital resistance varied largely in the same individual under different circumstances. This resistance was noted to be either hereditary or acquired, and that certain blood disorders, as scurvy, diabetes, etc., would to a great extent modify or break it down. Just how immunity was brought about was not explained until Metchnikoff brought out his theory of phagocytosis, and his observations have been proved in the main correct by indisputable evidence derived from animal experimentation in the hands of many observers. Buchner and his followers developed the humeral theory, but it is evident that this is part and parcel of the same process.

Pfeffer, studying the attraction and repulsion of animal and vegetable cells under the term of "chemotaxix," describes the manner in which, through inherited tendencies, cells are more or less attracted to invading microörganisms, and the activity of this chemotaxis tells the story as to the way which immunity is produced. Phagocytosis is not confined to the corpuscular elements of the blood, but is also participated in by the tissue cells.

Many prominent features of the functions of the red corpuscles have long been understood, while the so-called third corpuscle or blood plaque described by Osler is too little developed for practical working at this time. Investigations as to the functions of the leucocytes have produced much of practical utility.

Leucocytosis as an indication of nature's methods of defence to the invasion of certain microörganisms is an important element in diagnosis, especially in concealed pus formation. The observation of Roswell Parks that the abscess of appendicitis could be diagnosed by the presence of this condition has proved to be a valuable indication. Dr. Christopher Graham has made a number of examinations for me as to the leucocytosis of pus formation, and it can be said to be a reliable sign. Cabot has pointed out that pneumonia without leucocytosis is liable to be fatal and also develops testimony as to its presence in malignant tumors of rapid growth. Leucocytosis as known at present is largely of the polynuclear leucocytes which compose about sixty-eight per cent. of the normal number of white corpuscles, the lymphocytes about twenty-five per cent., and the remaining twelve per cent. of about an equal number of mono-neucleated, eosinphile and transitional forms of white corpuscles.

Experimental evidence would go to show that each variety of leucocyte has some peculiar inherited function in nature's defence, and we may look for much information as to the value of changes from the normal standard at an early date.

In diseased conditions not only are there variations from the normal, but entirely new forms of leucocytes appear.

The proper limits of this paper will not permit any extended discussion of this particular topic, but it is my conviction that blood study as a part of the preliminary examination of surgical cases will soon be as common as examinations of the urine. The vast importance of the so-called "condition of the blood" which has meant so much of clinical observation, and yet contained so little of real knowledge up to a late period, cannot be overestimated, and we will hail with delight the prospect of scientific accuracy which is now expanding so rapidly under the methods of modern research.

To those who are interested in this subject, the writings of Roswell Parks on the "Surgical Pathology of the Blood," and the works of Cabot on "Blood Examinations," will prove of great interest.

ANÆSTHETICS.*

By E. J. Davis, M. D.

Mankato, Minn.

In its broadest sense the term anæsthetics would include anything that produces insensibility to pain, but is now restricted almost entirely to agents which, in the form of vapor, produce such effects by being inhaled. Various agents have been thus used, but chloroform, sulphuric ether and nitrous oxide are now used, especially the two former, by physicians to the almost entire exclusion of all other substances to produce general anæsthesia. Hence we are naturally more or less interested in the comparative merits of these two anæsthetics, chloroform and ether. In Europe chloroform has almost universally been used far more than ether, while in this country ether is quite generally given the preference, because of its reputation of relative safety. Dr. Squibb states that the general hospitals in this country almost invariably use ether, and that the enormous amount of chloroform manufactured and sold must be used in private practice, the amount being estimated at about 100,000 pounds annually.

Both of these anæsthetics are best borne when administered early in the morning, because the stomach has then been empty for several hours and the body refreshed by sleep. But in any case no solid food should be taken, only the blandest liquid, and it several hours previous to their administration, for the emptier the stomach is the less the patient will require of these agents to induce complete anæsthesia, and the less trouble they are likely to give us. Physiologists tell us that respiration and circulation are the two great and vital actions of the human body, without which life cannot exist. As long as these persist the person is alive, although all other functions may be in abeyance. It follows from this that death occurs by the cessation of one or the other of these great functions, and by no other method, the direct cause of death being always the stoppage of respiration or the heart's action. The respiratory centre being somewhat under the control of the will, we can vary the rhythm of its action, and are more conscious of our dependence on respiration. The action of the heart is less obtrusive, and to most people is usually entirely outside of their consciousness, hence the less observed.

The object of an anæsthetic is to suspend the action of the nerve centres, which have to do with sensation and motion, while leaving the respiratory and cardiac centres intact. It is not surprising that these latter centres, with their rhythmic action under all circumstances throughout life, should persist in their function after other centres have succumbed. We may expect, however, that any agent which suspends the function of the centres of sensation and motion will have some effect on those of the respiratory and cardiac centres. The danger of these anæsthetics is in proportion to their action on the two great strongholds of life already mentioned. In order to more correctly estimate these dangers, it may be well to more closely consider in what different ways the respiratory or cardiac functions may be supended.

First, respiration. Writers on this subject recognize three different ways in which this function may be interfered with during administration of anæsthetics. First: There may be direct obstruction to the entrance of air, the approximation of the posterior parts of the arytenoepiglottidean folds of mucous membrane. These folds, by their vibrations, produce the stertorous noise resembling snoring, being, in fact, a laryngeal stertor, and they may become so closely approximated as to produce obstruction, being a very important mode of obstruction; and again, we may have falling back of the tongue and depression of the epiglottis. Both these forms of obstruction are removed by pulling forward the tongue and epiglottis. A second mode of obstruction, they tell us, is a retardation and stoppage of the circulation in the lungs; first, in the capillaries, then in the arterioles, and lastly, in the larger vessels. We can generally prevent the last two stages, if we observe closely the capillary circulation in our patient, by withholding the anæsthetic, providing narcosis has not been carried to such an extent as to prevent reaction. They claim that chloroform is more likely than ether, when inhaled into the lungs, to produce a direct local action and such a change in the walls of the vessels as to cause a retardation of the blood current; the engorgement of the lungs with blood causing an interference with the respiration. In the third place neurologists claim that an anæsthetic acting on the respiration will interfere with the nerve centres which govern the respiratory movements; hence it is plain that the direct poisoning of these centres by the agent used is a serious barrier against its indiscriminate or careless use. It should always be borne in mind, in every administration, that we are dealing with an agent the object of whose use is to paralyze the nerve centres; that it has this paralyzing effect upon the respiratory centres, as upon others, which effect must be taken into serious account.

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*Read before the Minnesota Valley Medical Association, December 1, 1896.

As in the case of respiration so have we in its effect on the cardiac function a somewhat complicated problem. From physiologists we learn that the proper centres of the heart are in the walls of the organ itself, and it is they which directly command the rhythmic movements of that organ. And these centres are in relation with the central nervous system by nervous connection with the vagus nerve on one hand, and the sympathetic on the other. Writers tell us that the connection with the vagus is the most important, as stimulation of the stem or cut-end of the vagus causes an inhibition of the intrinsic ganglia of the heart, so that the pulsations are diminished or caused to cease. In considering the effects of anæsthetics on the heart, we should carefully keep in mind the two methods in which the heart's action may be interfered with. First, the direct action of the agent on the intrinsic ganglia, and, secondly, the action through the vagus, as before the period of full narcosis, and during recovery, the reflex centres seem to be unduly active, and there is serious risk of syncope from stoppage of the heart. In this connection, the period at which death occurs is of considerable importance. Dr. Lyman, in his work on anæsthetics, publishes 219 cases of deaths from chloroform in which the periods of death are given below as follows: At commencement, 15; before complete insensibility, 99; during the period of insensibility, 70; after completion of operation, 35. The adminstrator should then remember that there are three serious risks in sight: the risk of an early and sudden syncope from reflex inhibition of the heart, which is minimized by a continuous and sufficient administration; secondly, the danger of obstruction of respiration by laryngeal causes; and lastly, the danger from the paralyzing effects on the great centres of respiration and circulation. When once anæsthesia has been produced, it is proper, by a continuous, regulated administration to keep up the condition, avoiding too great saturation of the blood on the one hand, and on the other, such a partial recovery as shall expose the centres in the medulla oblongata to reflex influence while the operation is not yet completed.

As to some of the circumstances which may or may not contraindicate the use of ether and the precaution that should be observed, we will briefly mention a few: First. No class of cases are specially prohibitive of ether, except where patients are suffering from kidney and respiratory disease. Second. Chronic drinkers are bad subjects for anæsthetics of any kind, and especially ether. Third. Age does not necessarily exclude its use, yet experience tells us that children take and bear chloroform much better than etner. Fourth. Heart disease does not contraindicate its use, and it is far preferable to chloroform, because its general effect on the circulation is that of a stimulant. If there is a tendency in the venous system to be overloaded and turgescent, as in mitral disease, when the right side of the heart is weak and dilated, then the administration of ether calls for extreme care on the part of the administrator. Beware of the presence or proximity of a naked light. Do not use more ether than is necessary to keep up the condition of anæsthesia. Watch the general character of the circulation to note the effects of shock, etc., or a tendency to engorgement of the right side of the heart. Watch the respiration. The dangers in respect of this function being too deep carbonization of the blood and mechanical obstruction. The capillary circulation, the color of the lips, and the delicate lobes of the ear are an index as to whether the patient is becoming too deeply carbonized and always open to inspection. Obstruction to respiration may take place from the simple falling back of the tongue, from spasm of the glottis, or from accumulation of frothy mucus in the larynx or lungs. If this latter effect occurs to a marked degree it is generally due to the use of too large a percentage of ether vapor in the air breathed.

A few suggestions as to the indications and contraindications of the use of chloroform. It is a safe anæsthetic in most cases, provided it is given by one skilled in its use who knows how to detect danger. It is not as safe as ether at any time, excepting in the class of cases where ether is contraindicated, and never safe in the hands of a tyro. The direct effects of chloroform are more dangerous than those of ether, while the after effects of ether are the greatest. For the signs of danger in its administration, the administrator should watch closely the respiration, because, as soon as enough chloroform is used to endanger the circulation, the respiration will show some signs of abnormality, either in depth, shallowness or irregularity. In other words, the very effect of the drug may be to cause such deep and rapid respiration that an excessive quantity of the drug is taken in the lungs, and continues to be absorbed even after the inhaler has been withdrawn. As respiration fails first, it should be watched first and most closely. It is by watching the respiration that we can tell how much chloroform the patient is getting. As a general rule death only occurs from the inhalation of chloroform when it is given without sufficient fresh air, too rapidly, and in excessive quantity. The dose of chloroform is not the amount in the inhaler, but the amount taken into the chest, and, finally, the amount absorbed in the blood. It is contraindicated in all cases of severe shock, the very feeble from whatever cause, and those with heart disease. The agreeable qualities and speedy action of chloroform have doubtless often induced us to adopt it in preference to ether. The occasional occurrence of death from its effects has caused much debate regarding the comparative danger from the use of different anæsthetic agents, and the superior safety of ether has, in England and in the United States, produced a very important reaction in favor of the original agent introduced by Morton, an American. Germany and the greater portion of France still prefer chloroform, a substance which, by its energy, its concentration, and its agreeable effects, will always commend itself to those who are inclined to place vigor and precision before safety.

In the use of anæsthetics danger and death approach by more than one route, and the treatment should be adapted to the symptoms presented. However, experience has shown the measures to be most reliable are not numerous. The first step is to insure free passage of air to and from the trachea by removing all obstruction on the part of the tongue, epiglottis or foreign bodies, which may be greatly aided by lifting up the lower jaw, combined with extension backward of the head and neck, or the tongue should be pulled out; and no doubt rhythmical traction of the tongue has a very beneficial influence when respiration or circulation, or both, suddenly fail. Nelaton's plan of lifting up the legs and body and allowing the head to hang down should be adopted simultaneously with Sylvester's method of artificial respiration, which should not be abandoned, they say, for at least an hour after all signs of life have been absent. Traction of the tongue, artificial respiration and inversion of the body are the great remedies in accidents from anæsthetics, being always at hand, easy of application and generally immediate in action. Hypodermic injections of strychnine, etc., are useful agents, also dilatation of the sphincter is highly recommendable. Among other remedies deserving of mention is electricity, but we are told that there is an element of danger in the usual instructions given, namely, to place one electrode on the side of the neck and the other over the diaphragm, for the purpose of stimulating the action of the phrenic nerve, in that it may stir up the inhibitory function of the pneumogastric, thereby producing an effect directly opposite to the one desired.

The many years that these anæsthetics have now been employed, their general and extensive use, and success attained, cause us to conclude that every painful and long continued operation, upon a patient who presents no contraindication of their use, constitutes an occasion for the induction of artificial anæsthesia. The anæsthetic used should be determined from a close study of the case, the disease, the age, circumstances and complications. By the aid thus procured, many operations in surgery are rendered feasible which otherwise could rarely be proposed. It is, moreover, asserted that by the use of anæsthetics the mortality after surgical operations has been greatly reduced.

Without undertaking the discussion of a question into which numerous other elements must in fairness be admitted, it may be safely conceded that the removal of that dread of pain, which we are told was always so formidable an obstacle to early operation for the relief of disease, and the diminution of the danger of exhaustion by pain during the time of operation, have largely contributed to an increase of safety in surgery. It should not be forgotten, however, that the loss of blood may be favored by the action of anæsthetics, especially in cases of over saturation and protracted administration. The depressing effect of the more powerful anæsthetic substances may sometimes exercise a prejudicial effect upon the convalesence of exceptional individuals. Notwithstanding these possibilities it can scarcely be doubted that the sum of human misery has been greatly reduced by the employment of anæsthetics in obstetrics and surgery.

HOSPITAL AND CLINICAL MEMORANDA.

REMOVAL OF OPEN BUCKLE IMPACTED IN THE ŒSOPHAGUS, WITH X-RAY SKIAGRAPH.

The report of the following case, with the accompanying skiagraph,* is an indication of the future usefulness of the Roentgen rays in practical surgery:

M. F., aged three years, was brought to St. Mary's Hospital, January 7, 1897, for the removal of a buckle impacted in the œsophagus for three days without attempt at removal. I requested Dr. J. G. Cross to make a skiagraph of the child's chest, which rendered the buckle plainly visible, open, its teeth projecting up and to the right, just behind the upper portion of the sternum. A left œsophagotomy enabled me to effect its removal by hooking a bent probe into the loop of the buckle and extracting it, blunt end first. The wound was packed with gauze and the patient made an uneventful recovery, leaving the Hospital January 20, 1897.

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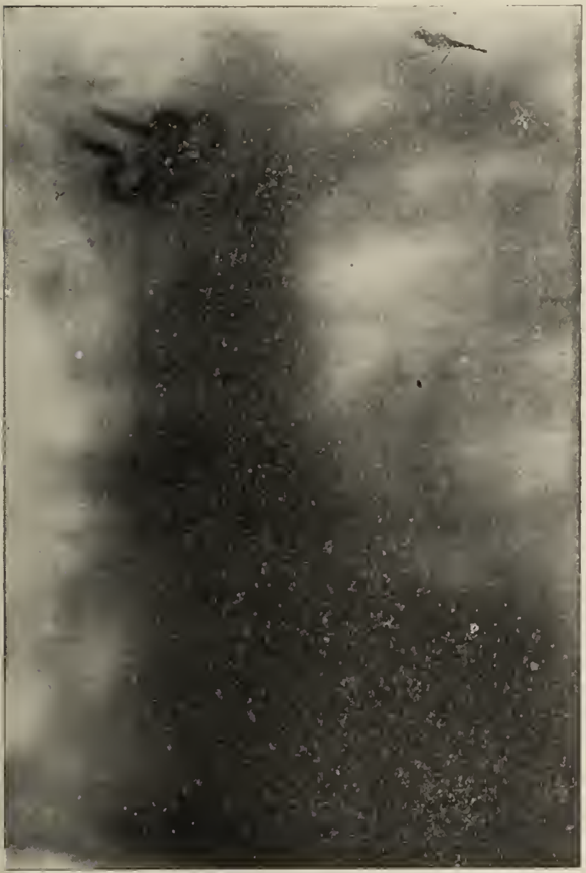
*Taken by J. G. Cross, M. D., of Rochester, Minn.

While it was known that the patient swallowed a buckle and had an obstruction of the œsophagus, the points of value to be ascertained were the location of the buckle and whether open or not. The former could be easily ascertained by an œsophageal bougie but not the latter. The bougie might be harmful, should the buckle be open, by forcing the points through the wall of the œsophagus.

The child was exposed to the X-rays twenty minutes while asleep in its mother's arms, without removing any but the outer clothing. The danger of its removal by grasping with forceps through the mouth and drawing up the points impacted in the wall of the œsophagus for three days will be readily seen.



The dark centre of the cut is caused by the spine and the shadow of the heart renders it larger below. The buttons of the clothing are easily distinguished.

C. H. Mayo, M. D.,
Surgeon to St. Mary's Hospital.
Rochester, Minn.

F. H. Edgeworth in the Bristol, (Eng.), *Medico-Chirurgical Journal*, says that the treatment of lumbago due to rheumatic myalgia or neuritis, consists in the administration of salicylates until toxic effects are produced, and in the use of counter-irritation, the best application for which is capsicum. The ordinary B. P. tincture is diluted with water in the proportion of one to five and applied on lint and covered with oiled silk to prevent evaporation. Mr. Edgeworth states that the effects of this treatment are extraordinary and quite inexplicable; it enables a patient to move freely and painlessly fifteen minutes after its administration, although before he could not make the least movement by reason of the pain. The result, continues the author, is, however, somewhat transitory; it wears off in an hour or so, but it can be reinduced by a fresh application, which may be done usually for half an hour four or five times a day.

Treatment of acute bronchitis by repeated warm baths is advocated by Renant, Paris. The cases in which this treatment is indicated are these in which the inflammation has not extended to the terminal bronchiole. Renant has treated over a hundred cases, and has not seen a single case develop capillary bronchitis or terminate fatally. Whenever the rectal temperature, which is taken every three hours, is over 102°, the child is immersed in a bath at 101.5°, leaving him in the bath for seven or eight minutes. Water of the temperature of the room is applied to the head. A little stimulant may be given while the child is in the bath. The bathing is to lower the fever and prevent toxic effects. Quinine is given in suppositories, bromide, morning and evening.—*Canadian Practitioner.*

Professor Boys, of England, reports the case of a lady, standing near a bright fire, who suddenly found herself in smoke. A gentleman who came to her rescue succeeded in crushing the ignited portion of her dress, not, however, without severely burning his hands. On investigation the fire was found to have originated from a spot where a large fancy button had been, but had disappeared. Similar buttons were subsequently examined, and were found to be highly inflammable, being made of celluloid.—*Annals Hygiene.*

It is said that the average duration of human life is increasing. In the seventeenth century it was but thirteen years of age; in the eighteenth, twenty years; in the present century it is thirty-six years.

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CHANGES IN THE MEDICAL EXPERT BILL.

After the publication in the last issue of the LANCET of the proposed act providing for the appointment of medical expert witnesses, several changes were made in the bill before its introduction into the legislature. The sections in which alterations were made are given below, the italics indicating the new matter:

Section 1. That upon the trial of all indictments in the District Court for offenses punishable by death or imprisonment in the penitentiary, whenever it is made to appear to the court that the trial of the issues will probably require the introduction of medical expert testimony, the court shall, upon the application of either party, appoint such number of experts as the court shall deem proper, not less than three nor more than five. Such experts shall in all cases be persons skilled in medical or surgical science, or in both, and shall be duly admitted to practise medicine in the State of Minnesota; provided, that in special and extraordinary cases, the court may in its discretion appoint as such experts persons resident in other states and duly qualified and admitted to practise medicine in the state where they reside. The party applying to the court for the appointment of such experts shall set forth the nature of the matters upon which the opinions of such experts will probably be required. The court or judge thereof shall provisionally prepare a list of such persons as it may have reason to deem properly qualified, and shall cause the said persons to be subpœnaed to appear at such time as the court or judge may order, due notice of such time and place to be given the opposing party. Upon the appearance of such persons they shall be sworn and examined by the court and by the counsel if they shall desire, touching their qualifications as such experts; *upon the request of either party the court shall appoint three suitable disinterested persons as triers, who shall be duly sworn and shall perform the same duties in determining the qualifications of such persons to act as experts as are performed by triers in the selection of jurors in criminal cases, and the examination of the persons proposed as experts shall be conducted under proper rules to be established by the court, in a manner similar as near as may be to the ordinary method of securing jurors; and if the court or, in case of the appointment of triers, if a majority of such triers, on such examination shall be satisfied that such persons are properly qualified* and are free from any actual or implied bias, such persons shall then be appointed by order of the court as a commission of experts in said action. If any of the persons so provisionally named shall not, on such examination, be found to possess the proper professional qualifications, or not to be free from actual or implied bias, the court shall name other persons who in like manner shall be examined, until a sufficient number shall be accepted by the court. *The triers shall be allowed the same fees as jurors, which shall be paid by the county.*

Section 4. The expert witnesses appointed under this act may be examined and cross-examined upon the trial in the same manner and subject to the same rules as other expert witnesses; but if upon preliminary cross-examination at the trial with reference to his qualifications, it shall appear that any such witness has, either before or after his appointment, expressed an opinion as to the merits of said action, or as to the matters concerning which he proposes to testify, to any person other than the other expert witnesses appointed by the court in such action, or has knowingly given to any person other than said experts any information or intimation as to the nature of his opinion or testimony or as to the opinion or testimony of either of such experts, or as to the results of any scientific experiment or examination which he or either of such experts may have made or participated in to prepare himself for testifying in said action; *his appointment shall forthwith be revoked, and he shall be allowed no compensation as an expert in said action; and he shall further be* *deemed guilty of contempt of court and liable to punishment therefor, and shall not be permitted to testify as an expert witness upon said trial.*

Section 7. The party applying for the appointment of such experts in civil actions shall give security to be approved by the court or judge for the payment of their fees and mileage, *or may be required by the court in its order of appointment to pay the same each day in advance, as in the case of ordinary witness fees.* Each expert witness shall receive such compensation as the court in its order of appointment shall prescribe, which shall not be less than ten dollars nor more than one hundred dollars per diem while in actual attendance upon the trial, and mileage the same as is allowed to other witnesses, which fees and mileage shall be taxed as part of the costs; provided, that in civil actions in which medical witnesses are appointed under this act, the court shall not allow expert fees to any witness other than those so appointed.

THE MEDICAL EXAMINER'S BILL.

By an unfortunate conjunction of circumstances there was no one present before the Senate Committee to speak for the Medical Examiner's Bill when it came up for consideration on February twenty-seventh, and in consequence the measure was indefinitely postponed. The bill has now been re-introduced into the house and will not again be allowed to go by default. It is likely to meet with considerable opposition because it will take the office of coroner out of elections, and by lengthening the terms of service, make a little less to divide up among the party spoilsmen. It can be passed only by earnest endeavor on the part of the physicians all over the State, each of whom should appeal directly to his representative to vote for the bill.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. BEARD, M. D., SECRETARY.

STATED MEETING, FEBRUARY 3, 1897, at the Hotel Ryan, St. Paul; The President, Dr. W. A. JONES, in the Chair.

Dr. J. W. DUDLEY, of Minneapolis, was elected to active membership.

The Secretary announced the death of Dr. PERRY H. MILLARD, of St. Paul, one of the charter members of the Academy. A committee was appointed to draft resolutions in commemoration of Dr. MILLARD.

Dr. W. J. MAYO, of Rochester, read a paper entitled

THE PRELIMINARY EXAMINATION OF SURGICAL PATIENTS.

See page 87.

Dr. J. E. MOORE opened the discussion. The paper, he said, was an interesting and instructive discussion of points which, while essential, were apt to be overlooked in making a surgical diagnosis. His personal experience had taught him to put some stress upon certain precautions in the way of examination. A chemical analysis of the urine was usually made prior to, but this was not more essential than a microscopical analysis. In illustration he cited a case of recurrent appendicitis which he, with his consultants, had decided to operate upon. The ordinary chemical urinalysis was had, and the urine was apparently normal. Before the operation the patient's temperature was 102° F. Symptoms were relieved by operation. Upon the following morning, active delirium appeared for which no cause could be discovered but in the kidneys. No albuminuria was present, but the microscope showed casts. Inquiry into the patient's history then revealed the fact that, in an early pregnancy, she had suffered with nephritis. In a later pregnancy, but two years since, no nephritis had been discovered. Chloroform, only, had been used, but the patient, who did not survive, might have been saved had due attention been paid to the kidneys before the operation.

He thought that the existence of valvular heart disease was not an inevitable bar to operation if the latter was imperatively demanded. He had operated cases in which heart lesions were present, and that under chloroform, with successful results.

He urged the dangers of depending upon examinations, remote from the date of operation, and said that he had himself been misled by relying upon conclusions he had formed at a period remote from actual operation. He recalled a case of hydrocele, in which he had advised an operation, which was, at the time, refused. Two months later the work was undertaken without further investigation, when a sarcomatous testicle was discovered which had to be removed.

In another case, a radical operation for hernia was needed and advised. It was postponed for some time and then operated upon without further inquiry. After the operation had been begun a coëxistent femoral hernia was found which had to be dealt with also. He recognized an indefinable quality in the appearance of certain surgical patients, which he could not describe, but which always warned him to go slowly and to doubt the success of operative measures.

Dr. Knut Hoegh, of Minneapolis, said that he wished to emphasize the therapeutic indication afforded by the fact that leucocytosis was the remedial attempt of nature to combat infection. Such measures as counter-irritation, which formerly the physician blindly adopted, were explained by their effect in increasing the fund of leucocytes by which the tissues are fortified and a natural auxiliary in the defense of the organism secured.

Dr. F. A. Dunsmoor, of Minneapolis, suggested that in the preparation of the patient for anæsthesia atropia might be given to advantage in place of an opiate. It lessened secretion, and modified respiratory and heart action. Much valuable information in respect to the influence of morphia in anæsthesia had been derived from its use upon dogs in the physiological laboratory.

He agreed with Dr. Moore that chloroform could be used safely in cases of valvular heart disease, provided the lesion was a left-sided one. If the pulmonary side was involved he considered chloroform dangerous.

Dr. A. W. Abbott, of Minneapolis, said that he was unable to criticise, but would like to offer one or two suggestions which were in agreement with it. After the administration of an anæsthetic, a patient should not be moved. Moving increased the tendency to nausea and necessitated the use of a larger quantity of the drug. Anæsthesia should not be attempted until the patient was upon the operating table. It was his habit to use strychnia before operation. He had found the best results, he thought, from its use for three or four days previously.

Dr. C. L. Greene, of St. Paul, referred to the importance of the discovery of leucocytosis as an evidence of pus formation, but said that, *vice versa*, pus formation does not always cause leucocytosis. This depends upon the severity of the infection and the degree of resistance in the tissues. If infection is slight or the degree of resistance low there is apt to be no leucocytosis. He had observed that patients suffering with very severe anæmia did not bear operation well. He thought that cases were often rashly operated upon which should be kept under prior treatment for some time in order to improve the blood conditions before operation. He had seen cases in which the hæmoglobin was diminished to twenty-five per cent., fitted for operation in a short time.

In regard to the use of chloroform in valvular heart disease, he considered that it involved little danger in the case of single left-sided lesions, but with double lesions, involving both sides of the heart or two valves upon one side, he believed that its employment was dangerous.

Dr. W. A. Hall, of Minneapolis, said that along the line of Dr. Hoegh's remarks in regard to leucocytosis, he would suggest the desirable effect in this direction of the administration of sulphate of magnesia.

Dr. J. H. Dunn, of Minneapolis, said that errors in the employment of anæsthetics were for most part failures in making a complete diagnosis. No one thing, such as cocaine or morphia, should be employed in every case as a preänæsthetic. A motive for the use of each agent should be found. No one thing is always safe. Morphia is desirable in operations for diseases of the bladder. Chloroform, if properly given, is just as good as any other anæsthetic, excepting in cases of hemorrhage or shock, when ether seems to improve the pulse.

Dr. J. E. Moore said that hæmophyllia was so rare a condition as to be unlooked for as a matter of routine; the need for inquiry into the possibility had been illustrated by two cases he had recently met with.

Dr. A. W. Abbott referred to the use of such fluids as the normal saline solution for introduction into the body *before* instead of *after* operations involving marked hemorrhage.

Dr. Dunn said that he could not understand why it was dangerous to move a patient who was properly anæsthetized. If the patient were but half anæsthetized it might be undesirable.

Dr. C. H. Hunter said that he could not expect to add to or to controvert successfully any point made in such a paper as Dr. Mayo's, but it seemed to him that the scope of such an examination as the paper proposed was merely that of a complete diagnosis. And here came in the question of the need for the services of the laboratory man. It was a matter of discretion whether one was justified in a given case in going to the expense of making a blood examination, for instance.

In regard to the choice of anæsthetics, he said that his experience had not led him to bar anæsthetics in cases of heart disease, although Dr. Mayo had spoken as if they should be avoided. He thought that when death occurred under chloroform it was probably due to toxæmia and not to the failure of the heart muscle. He commended the drop-by-drop administration of the anæsthetic. He considered the kidney the danger-point in the use of anæsthetics, as well of such toxic substances as iodoform. The most careful examination of the urine should be made.

Dr. Mayo closed the discussion and expressed his appreciation of the comments which had been made upon his paper. He had been led to this subject by the recognition of the fact that regret most often follows those cases in which the surgeon's too great concentration upon surgical conditions leads him to overlook non-surgical facts. He thought that the study of the blood was the key to those cases in which we instinctively dread operation. He considered that the choice of an anæsthetic was largely a matter of locality and its safety largely a matter of administration. His own choice was ether.

Dr. J. W. Dudley, of Minneapolis, read his thesis entitled

THE CONSTITUTIONAL EFFECTS OF THE IMPROPER FEEDING OF INFANTS AS EXEMPLIFIED BY INFANTILE SCORBUTUS.

See page 83.

Dr. A. J. Gillette, of St. Paul, in opening the discussion, said that he had had the misfortune to see three cases of scorbutic joints. They all closely resembled tubercular hip-joint disease; in fact they had all the typical symptoms, excepting atrophy and shortening. He was only able to make a diagnosis by the acuteness of the attack and the condition ot the gums. All of these infants had been using proprietary foods. Orange juice and proper diet relieved them promptly. He believed such cases more frequent than was supposed and that the disease does attack the spine.

Dr. R. O. Beard, of Minneapolis, said that the cure of scorbutus by certain food-principles and especially by the fruit-juices, was not sufficient proof of causation of the disease by the absence of these food-stuffs or by the excessive use of proprietary foods or sterilized milk. A wide variance of opinion as to its causation existed in the profession. One writer ascribes it to the use of Mellin's Food, another to the use of sterilized milk, while a third makes the use of sterilized milk the prime agent in its cure. These food materials most physicians have used in the feeding of infancy for many years and they have met with no scorbutus. During the past few months several cases have been seen and heard of in this locality, and it may be strongly suspected that the disease is one with which the bacteriologist should deal, and that certain conditions of diet afford, perhaps, a good medium for the development of a scorbutic germ while other food-agents are unfavorable to its life.

Dr. T. S. Roberts, of Minneapolis, said that, with all deference to the author of the paper, he was inclined to agree with Dr. Beard. Most of us had used proprietary foods for many years and had not met with the disease. It had apparently invaded the country within the past few years. Authorities abroad had held it to be due to a microörganism. Undoubtedly children fed upon artificial food are most susceptible to its development. It usually occurs in well-to-do families who can afford these high-priced foods. In poorer families, a more varied diet is unfavorable to its occurrence. He had seen three well-developed cases in his own practice. All had been fed upon patent foods and all recovered promptly upon the usual dietary treatment. Dr. Barlow had stated that the joints are not affected in this disease, but in one of his own cases they were certainly involved.

Dr. Gillette quoted Dr. Taylor, of New York, as stating that the vertebral column may be involved in the disease. His first case he had diagnosed as double hip joint disease.

Dr. J. E. Moore said that he doubted the germ-theory of scorbutus. He thought the disease not so uncommon and believed it had been overlooked and that it was due to improper feeding. He had seen several cases in late years which were believed to be joint or bone cases. While recognizing the distinction between rickets and scorbutus, he held that there must be a relationship between them, since most cases of scorbutus he had seen had occurred in rachitic children. He thought that more mothers should be made to nurse their own children.

Dr. Dudley, in closing the discussion, said that he agreed with Dr. Beard as to the real cause of scorbutus, but he thought the diet served as an exciting cause. Practically the disease did not develop when the child was fed upon milk, not heated to more than 170° F.

MISCELLANY.

It has passed current that sea air contains an appreciable quantity of salt. To test this, M. Chaix made a series of experiments. He passed about thirty feet of cubic air through a solution of silver nitrate. In every case there was not the least cloudiness of the solution, which proved that the air contained no salt. The air contains salt only when the wind carries salt spray. If we wish to benefit by the salt in the air we must go where the sea is sufficiently agitated by the wind to continually hold sea-water in suspension.—*Popular Science News.*

THE MARCH MAGAZINES.

Harper's.—Easily the most important contribution to the March magazines is Captain Mahan's "Preparedness for Naval Warfare" in *Harper.* Captain Mahan is the most eminent naval writer of this decade, and what he says on this subject will be read with interest in all parts of the world. He clearly shows that the logic of our recent expansion of the Monroe Doctrine requires us to own a large navy. The second part of "The Awakening of a Nation" is beautifully illustrated, and is absorbingly interesting. The "Astronomical Progress of the Century" is a splendid review of a subject full of interest to all classes of readers. Every page of this issue shows what a magnificent magazine *Harper's* has become.

The Atlantic.—Prof. Woodrow Wilson, a fair and a delightful writer, occupies the place of honor in the March *Atlantic* with an appreciative estimate of "Mr. Cleveland as President." Thomas Wentworth Higginson contributes "Cheerful Yesterdays," in a series of articles that cannot fail to rank with the contributions that have given character to the *Atlantic,* and made it our best literary magazine. Who could write so ably and so entertainingly of "The Arbitration Treaty" as Prof. John Fiske? If the Senate of the United States would devote one of its sessions to the consideration of this article, it would be the most sensible and valuable thing done by that body in a "weary while," as Prof. Fiske himself would say.

"The Good and the Evil of Industrial Combination" is another valuable contribution to this issue, and many legislators will find food for thought in it.

The Review of Reviews.—Moses P. Handy gives an illustrated "Character Sketch" of Lyman J. Gage that raises our already high opinion of our new Secretary of the Treasury, and which shows that a distressed nation may place hope and confidence in this man's ability properly to shape the financial policy of the government under President McKinley. All the great topics of the month, at home and abroad, are ably discussed in this issue, and much of it seems fresher than what we get in our daily papers; and it is fresh because much of it is new.

The longest article of the issue is Mr. Stead's sketch entitled "Her Majesty Queen Victoria: A Study of the Longest Reign in British History."

Such issues as this tend to make the *Review* indispensable to every intelligent reader.

Lippincott's.—We presume the average reader turns to his *Lippincott* for its complete story, considering this the special and best feature of the magazine. Well, it is a good feature, but the March issue shows that the publishers are after the best matter that finds its way into any American magazine. Such articles as "Farming Under Glass," "The Deserts of Southern California," and "In the Manuscript Room of the British Museum,"—all by able writers,—give *Lippincott* such a standing that it need not fear comparison with the best of our strong magazines.

The Cosmopolitan.—"The First Essentials for Prosperity," by John Brisben Walker, editor of the *Cosmopolitan;* "The Methods of Banking," by ex-Postmaster General James; and "The New Administration" are articles that everybody just now wants to read, and they are readable. "Corfu and its Olive Groves," "Facts and Fancies about Violins," and "A Winter Trip to St. Kitts" are beautiful illustrated articles, which, together with several others, increase our wonder at what can be done for a dollar a year. The *Cosmopolitan* is a great success, at least for its readers.

NOTES.

NOTES ON THE TREATMENT OF INTESTINAL INDIGESTION.

By Hugh S. Cumming, M. D.

United States Marine Hospital Service, Norfolk, Va.

All physicians have seen, and often vainly tried to cure, victims of intestinal indigestion.

The characteristic distress in the epigastrium or right hypochondrium, beginning several hours after the ingestion of food, and accompanied by distention of the intestines with gas, constipation, changes in the character of the urine, and other disagreeable symptoms, should make the diagnosis usually clear. More marked than these are the abnormal nervous phenomena, mental depression, irritable temper, sleeplessness and headache.

This distressing condition may be caused primarily by an abnormal condition of the digestive tract, as well as by imperfect mastication of food, due to haste in eating or to imperfect teeth; or it may be caused by deranged gastric digestion, for perfect intestinal digestion is dependent upon a properly prepared acid chyme, stimulating a normal liver to secrete normal bile, the resultant products being acted upon by normal pancreatic and intestinal juices.

In the treatment of these cases of intestinal indigestion, our first care should be, of course, to restore mouth and stomach functions; but even should the causes be primarily in the mouth or the stomach, the intestinal tract with its important organs is often so thrown out of gear that nature alone seems unable to repair the injuries.

In such cases, as well as in those primarily caused by an abnormal pancreatic juice, an artificial or natural substitute for the diastatic ferment of this juice has been long needed and sought for by the profession. Formerly, the effort was to get a ferment through the acid gastric juices into the alkaline intestinal secretions without destroying its power. This, however, is evidently a useless undertaking now, as we have found from careful clinical observation that taka-diastase gives perfectly satisfactory results in the treatment of such conditions.

In every case in which I have used taka-diastase, the result has been markedly good. I have been able to note a gradual gain in flesh and a rapid change in the general mental condition of the patient. I also give careful instructions with regard to dieting, insisting upon a variety of food, slow chewing, and avoidance of excess of any kind, with special caution with reference to acids and condiments.

I have welcomed the addition of taka-diastase to our list of modern remedies, for certainly no trouble is more common than intestinal indigestion, nor has any disease come under my observation which has been so troublesome to treat or so difficult to overcome.—*Therapeutic Gazette.*

CAMPHO-PHENIQUE IN DIPHTHERIA.

A letter received from Doctor Heber Roberts, formerly surgeon of the Illinois Central Railroad, Southern Pacific Railroad, etc., etc., dated January 27, 1897, says:

"I am a very large user of Campho-Phenique. My best prescription is written thus:

℞	Campho-Phénique	
	Glycerine	aa℥1.
	Mix	

The fact is, the germicide is best used with glycerine—always shaking the vial before using. There are physiological reasons why it is best used in this way on human tissues. I will save more lives with Campho-Phénique and glycerin where a local germicide is an essential, than any known preparation. I do not need horse juice (antitoxine) on a local disease like diphtheria. Campho-Phénique and glycerin has served me without a single fatality in every case of diphtheria."

CLEANLINESS IN CATARRH.

Dr. Edwin Pynchon, in an article in the *Annals of Ophthalmology and Otology*, calls attention to the widely varying formulæ of Dobell's Solution given by different authors, and incidentally mentions what is a really practical question in the treatment of naso-pharyngeal catarrh.

Numerous preparations are widely advertised as adapted for cleansing purposes in the nasal cavity, and are possibly of real merit, but the price asked for the product is so exorbitant, that to people of moderate means the expense is a serious factor, while to the poor it is beyond their purse, and in each case, after the prescription has, perhaps, been filled once, they cease its use, and go back to the home remedy of salt and water of varying strength, and usually with disastrous results.

The Seiler's tablets, made by different manufacturers also vary in strength and composition, and our experience has taught us that several of those on the market cannot be used without causing great smarting and even pain.

The fluid used in cleansing the nasal cavities in both atrophic and hypertrophic rhinitis, should be of about the specific gravity of the serum of the blood, and this is acquired in the solution advised by Dr. Pynchon, which is as follows:

℞	Sodæ Bicarb....................	2	ounces.
	Sodæ Biborat.....	2	ounces.
	Listerine (Lambert's)...........	8	ounces.
	Glycerine........................	1½	pints.

One ounce of this formula added to a pint of water, yields a bland and pleasant alkaline solution with a specific gravity of 1.015.

The addition of the Listerine takes the place of the carbolic acid in the original formula, and is a decided advantage, and is quite as efficacious as the acid.

The common use of Listerine and water should be superseded by the addition of the alkaline solution given, and in the preparation thus made we have all the advantages of any cleansing agent, and it can be furnished at a price commensurate with all pockets.—*Atlantic Med. Weekly.*

"FLOWERS THAT BLOOM," ETC.

In spite of deep snow and cold weather, if one has a copy of Vick's New Floral Guide, he may spend a most delightful evening planning his flower and vegetable garden that is certain to bloom and bear fruit, if Vick's seeds are used. Isn't it a wonderful record that Vick has made? It is said that of the many millions of packages of seeds that this house has sent to all parts of the world since its establishment, scarcely one has failed to give satisfaction; and today the mail rarely ever brings a complaint from the firm's customers. Business men who receive large mails and know how prone are people to complain, if the slightest error is made, will appreciate what such a reputation means.

We need hardly add that the great business of James Vick is conducted at Rochester, N. Y., and that the house is always glad to have the name of every person interested in the cultivation of flowers or in raising vegetables.

CONSTIPATION NOT HARMFUL.

An editorial in a recent number of *Practical Medicine* discusses the subject as follows:

"One of the most remarkable articles which we have read in some time recently appeared in one of our exchanges. We would think but little of such an article did it not come from one of the faculty of the Post-Graduate College. The writer declares that constipation, even for a long period, brings no bad results whatever. He says that it is an experience which physicians make every day, that patients are kept in bed for weeks without any movement of the bowels and yet there are no bad effects."

In treating a case of chronic constipation, the author says: "It is best to tell the patient not to take any drugs and not to get alarmed if he has no movement for about a week." While such advice may be in strict accord with some new discovery in the bacteriological laboratory, yet it is precisely contrary to the experience of almost every physician who has had anything to do with practical observations at the bedside. Instead of modern methods teaching us something new in this line, we believe that they rather confirm the teaching of the old Scotch proverb, that you will be all right if you trust in God and keep the bowels open.

At the last meeting of the Mississippi Valley Medical Association, Dr. I. N. Love, of St. Louis, expressed himself exactly according to our belief when he said: "There can be no doubt that the majority of diseases which afflict human beings, male and female, are largely dependent on constipation."

Just in this connection might properly be added the best relief and the best cure for this condition. We refer to Syrup of Figs as prepared by the California Fig Syrup Co. Excellent, economical, effectual.

BICYCLES FOR SALE.

One Lady's 1896 Monarch; price $45.

One Gentleman's 1896 Stearns' (Yellow Fellow); price $50, including a bicycle valise made to fit the wheel, fine new lantern, and a cyclometer.

Both wheels are in almost perfect condition. Address B., 1039 Lumber Exchange, Minneapolis.

AMENORRHŒA.

Dr. C. C. Abernathy writes: "I placed a sample bottle of dioviburnia (Dios) in the hands of a young lady who had been suffering from amenorrhœa for six months, with instructions to use it and report result. At the expiration of two months she wrote me, 'You can safely recommend dioviburnia; it has entirely relieved me.' Encouraged by this gratifying result I procured through our druggist a dozen bottles, and have used them all, and more, in the treatment of dysmenorrhœa, menorrhagia and leucorrhœa, in all of which there is generally congestion of the womb and ovaries, and I am pleased to say that it has acted well in every case. I shall continue to use it."

INFLAMMATORY DIARRHŒA.

In the insidious beginning of the disorder, when large, pasty stools are being passed, the child, if an infant, should be fed with weak veal broth and barley water in equal proportion; whey with cream; the yolk of one egg beaten up with broth or whey, and Mellin's food mixed with whey or barley water.

The meals should be frequently varied during the day, and the quantity allowed must be strictly proportioned to the infant powers of digestion. For medicine he may take a powder of rhubarb (gr. ij-iij) and aromatic chalk (gr. iij-v) every night for three nights; and in the day, a mixture composed of half a drop or a drop of laudanum with four or five grains of the bicarbonate of soda in some aromatic water.— From "Disease in Children." Eustace Smith, M. D.

"Having derived material benefit from the use of Tongaline during several years past, I feel it no less a duty than a pleasure to make the following statement in regard to it: All of the ingredients contained in this preparation have been demonstrated as especially valuable in neuralgia, rheumatism, gout and sciatica, and the compound, by recent observers, has been noted as quite beneficial in relieving the pains incident to la grippe as well as nervous headache. Having made quite frequent use of it, as before stated, with most satisfactory results in some cases of acute rheumatism, in many of chronic and muscular, as well as neuralgic affections, I have no hesitation in earnestly recommending it in similar cases, and I know that in many cases of these affections I have saved my patients from the dangerous necessity of a resort to opium or its salts. Many other observers speak in most high terms of it after thorough and repeated trial.

"Deering J. Roberts, M. D."

Extract from *Southern Practitioner*.

Dr. A. V. Brockett, Cleveland, O.: "I use almost exclusively 'Sander & Sons' Eucalypti Extract, Eucalyptol,' as a local application in the commencement of colds, la grippe and sore throat. I find when it is used early in these diseases, applied in full strength or diluted two or three times in water, it will arrest them in a few hours. I use but a small amount, and not oftener than every hour or two."

We notice that the Chicago Policlinic announces that the annual special course in Surgery, Gynæcology, Dermatology and Venereal Diseases, which has become such a prominent and important adjunct to the regular courses, will be held in April. The great popularity of these courses is well known by the constantly increasing attendance and interest taken in them by general practitioners.

MISS BAKER'S PRIVATE SCHOOL

For Special Training of

NERVOUS AND BACKWARD CHILDREN,

to be located near the Twin Cities, will be open about the

FIRST OF MAY, 1897.

Address Miss Laura Baker,
Faribault, Minn.

ORIGINAL ARTICLES.

NOTES ON THE HISTORY OF THE MEDICINE OF THE ANCIENT JEWS.

By Franklin Staples, M. D.

Winona, Minn.

The history of the Jews in Palestine begins with the coming of Abraham, the Chaldean, into the land of Canaan nearly two thousand years B. C., and continues to the destruction of Jerusalem by the Romans under Titus, the time of the dispersion, A. D. 70.

The Jews were Semites, were divided into tribes and lived largely a nomadic life. Two important events, marking distinct periods, occurred in the history of the early Jews which not only affected their civil and political life, but gave them a more extended and higher culture than would otherwise have been. These were, first, the sojourn of the Israelites in Egypt in the sixteenth century B. C., and, second, the Assyrian and Babylonish captivities in the sixth and seventh centuries B. C. The Jewish tribes, in their wanderings and captivities, became informed concerning the civilization and learning of other ancient peoples, served as a means of communication among the nations of antiquity, and transmitted to modern times some of the science and art belonging to the ancients. Moses, the great Hebrew law giver and deliverer, was born in Egypt, and is given in the New Testament account as "educated in all the wisdom of the Egyptians," and as "mighty in words and deeds."

The methodical study of medicine is known to have begun in Egypt in the prehistoric period; evidence concerning which has come to us in the records of the tombs, the monuments, the mummy-cases, and on a few papyri still existing. The papyri preserved at Leipsig and Berlin belong to the fifteenth and sixteenth centuries before the Christian era, and in these are the remains of still more ancient writings of the practice of the medical art in Egypt.

The time of the Hebrew settlement and of the life of Moses in Egypt was in the sixteenth century B. C. The written records, which are the sources of our knowledge of medicine among the Jews, are mostly in parts of the Old Testament Scriptures and of the Talmud, with references also in the New Testament.

THE CHARACTER OF JEWISH MEDICINE.

The theurgic character of Jewish medicine appears, as in Deut. XXVIII., where the pestilence of disease is inflicted as the direct punishment for sin, as well as in certain accounts where the evil spirits of infirmity and disease are driven out by direct command.

Not only in the scriptures does it appear that the Jews held to a demonian theory of disease, but Josephus, speaking of the wisdom of Solomon, says: "God has enabled him to learn the skill that expels demons, which is a science useful and sanative to men. He composed such incantations also by which distempers are alleviated, and left behind him the manner of using exorcism, by which they drive away demons so they never return; and this method of cure is of great force unto this day, for I have seen a certain man of my own country, whose name was Eleazer, releasing people who were demoniacal."*

The theurgic medicine of the Jews was higher than that of other Oriental nations in that it was monotheistic. They believed in one God, the invisible one. They were not of themselves idolaters. They believed that diseases were inflicted upon men as punishments. The book of Deuteronomy, containing the words and commandments of Moses to the time of his death (B. C. 1451), has several allusions to diseases prophesied or declared as punishments. (Deut. XXVIII., 21, 22, 27, 35). Other books of the Old Testament in which various diseases are mentioned and described are Genesis, Exodus, Leviticus, I. Samuel, I. and II. Kings, the book of Job and others. II. Chronicles, XVI., 12, 13, 14, gives account of the foot disease of King Asa, as follows: "And Asa, in the thirty and ninth year of his reign, was diseased in his feet until his disease was exceeding great; yet in his disease he sought not the Lord, but to the physicians. And Asa slept with his fathers, and died in the one and fortieth year of his reign. And they buried him in his own sepulchre, which he had made for himself in the city of David, and laid him in the bed which was filled with sweet odors and divers kinds of spices prepared by the apothecaries' art; and they made a great burning for him."

Several suggestions are made in this quotation. Whole sermons have been made from texts containing not half the important points which appear in this. First, the diagnosis of the king's disease. It may have been gout, or œdema from some other disease; or, perhaps, senile gangrene. Secondly, Asa's choice of physicians. It is shown that there were at this time among the Jews physicians other than the priests. Thirdly, the apparent result of his choice: "And Asa slept with his fathers." This is what Dr. Billings calls a "grimly sarcastic account" of Asa and his physicians. Lastly, in the burial, appears the Jewish knowledge of Egyptian embalming, and the existence of apothecaries who prepared the embalming material. The knowledge and the practice of embalming the dead also appears in the account of the burial of Jacob in Genesis L., 2: "And Joseph commanded his servants to embalm his father; and the physicians embalmed Israel."

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*Antiquities of the Jews, Book VIII., Chap. iii., 5.

Old age, with its failing powers, is strikingly described in Ecclesiastes XII. The diseases here mentioned, and in some instances described, as well as what appears in other parts of the scriptures, may not be regarded as in any way an enumeration, their mention and characterization here being incidental accounts given for other and different purposes.

THE PROFESSION.

Dr. Billings in his history observes: "It does not appear that medicine was regularly studied among the Jews as a separate profession until the rise of the Alexandrian school, nor does either the science or the art of medicine owe anything to this nation until after this period." He suggests that "the often quoted chapter XXXVIII. of Ecclesiasticus about the physician is of later date, and was probably written under Greek influence."† He further observes: "Some specimens of Jewish surgery prior to 200 A. D. are to be found in the Talmud. The Rabbis were acquainted with sutures for wounds, with the method of freshening the edges of an old wound to obtain reunion. * * * They understood the application to the body of artificial parts, as for supplying the loss of substance of the trachea. and replacing the loss of substance of the cranial bone; they knew of artificial teeth, wooden legs, as also various forms of apparatus for the unfortunates who were deprived of the use of their lower extremities."†

As before expressed, the period of ancient Jewish medicine was that of the nation before the destruction of Jerusalem and the dispersion of the Jews. The medicine of this period among the Jews has been designated as that of the Old Testament, while the later medicine of this people, in which the science of the Greeks appears, has been called the medicine of the Talmud. Points of difference between the two appear as follows: The old Jewish medicine was theurgic; differing, however, from that of the Assyrians, the Babylonians and the Egyptians, in that it was monotheistic in character, while the later medicine showed the beginnings of science in the philosophy of disease and concerning the means of prevention and cure. As expressed by Dr. Baas: "Old Jewish medicine, too, was almost exclusively a medicine of the State, not a private profession. Talmudic medicine, on the other hand, gave undeniable precedence to Greek methods and Greek science, and excluded what we may call Jewish medicine from further development."|| The phylacteries of the Jews were charms or amulets in writing, and were used as a means of expelling the demon of disease. The Hebrews of themselves were not inclined to methods of magic, but in their intercourse with other nations they learned to practise the art in the treatment of disease.

Naaman, the leper, the captain of the host of the king of Syria, was directed to bathe in the Jordan for the cure of his leprosy. Abana and Pharpar, rivers of Damascus, would not do as well. II. Kings, V., 10.

It has been supposed that the Levites in their priestly offices performed the duties of physicians. They are spoken of as examining cases of leprosy, and in their service having regard to the social purity of the people. Rules were made defining their qualifications as physicians. What was true of physicians and surgeons and of governmental control in the times shortly before the Christian era, is clearly described by Dr. Handerson in a note in Baas' History as follows: "In Talmudic times, although every physician as a rule practised surgery also, there still existed a few special surgeons, who devoted their entire attention to surgery. The latter were called 'Ulman,' while the physicians bore the title of 'Rophe-Uman,' or simply 'Rophe.' Both classes of medical men were under the immediate jurisdiction of the local courts of justice (Beth Din), without whose license no one was permitted to practise. Each city was compelled to have at least one 'Rophe-Uman.' The Talmud also mentions Ila, a veterinary surgeon, of Jabne."

The tribe of Levites has been mentioned as at once the judges and physicians of the people. It is a question as to the amount of truth in the tradition that king Solomon was the author of a book in which was taught the treatment of disease by natural means, and that the work was destroyed by Ezechias because it was injurious to the Levites, whose method of cure was by expiatory sacrifices.

Something more general than purely theurgic treatment appears in this: The Levites in their treatment of leprosy are said to have pursued the following method: First, isolate the patient; here was early quarantine for supposed infectious disease. Second, purify the body by repeated ablutions. Third, offer up expiatory sacrifices.

Josephus, in his "Wars of the Jews," gives an account of the Essenes, a Jewish sect in the second century B. C. They were distinguished as an exclusive society, were inclined to asceticism, re-

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† The apocryphal book of Ecclesiasticus is believed to be a part of the Jewish-Greek literature of Alexandria, belonging to the time of the Ptolemies, within 300 years before Christ. In the 38th chapter referred to is found the words: "The skill of a physician shall lift up his head, and in sight of great men he shall be in admiration;" and other expressions showing the honorable position of the physician at the time.

†History and Literature of Surgery (J. S. Billings) Dennis' System, Vol. 1, p. 19.

|| Baas' History. Am. Trans., p. 31.

nounced marriage, believed in recruiting their members from the outside world, dressed coarsely, were engaged in agriculture and were temperate in all things. The account is that they studied ancient works that they might learn of the things useful to the body and the soul, that they acquired a knowledge of remedies for diseases, and learned the virtues of plants, stones and metals. Other authority mentions the Essenes as Therapeutists and Healers.

While dissection of the human body was not permitted among the Jews, yet in the time near the Christian era, when the influence of Grecian philosophy prevailed, attempts were made for the acquirement of a knowledge of anatomy and pathology principally by the dissection of animals. Diseases were ascribed, in part at least, to causes other than evil influences from without and to the power of magic. Jaundice was considered as caused by retention of bile. Dropsy was divided into anasarca, ascites and tympanites, and was attributed to suppression of the urine. The Talmud has descriptions of different anatomical parts, and describes, among other operations, one for stone in the bladder and for the reduction of various fractures and dislocations. Some of the methods of treatment as given were not much in advance of that of a cure by exorcism of the demon of disease. The therapeutics of the time was not in keeping with what was understood in a general way concerning plants and other medicinal substances. The following remedies are menioned, with others: Wine and pepper for disorders of the stomach; emetics in nausea; injections of turpentine for stone in the bladder; a dog's liver as an antidote for the poison of the bite of a mad dog. Some of this would seem to be in the line of early Assyrian and Babylonish medicine, and to be suggestive of the doctrine of the similars, afterwards appropriated in the theories of Hahnemannism. This inborn idea of cure by "similars" appears among the Israelites in many ways. It is recorded that in the time of Samuel the Philistines, because they had carried away the ark of God, were punished by the infliction of hæmorrhoids, from which they were relieved by offerings of golden figures in the form of hæmorrhoidal tumors. The *similia similibus* in this case was about as much to the point as is much of the modern application of the principle.

The operation of circumcision was probably learned by the Jews from the Egyptians, and was adopted by them not only as a sanitary measure, but as a religious rite, which, with other requirements, has remained in the national code to the present day.

In what pertained to personal and social purity, as well as in what related to public hygiene, the Jews, by their laws and government, were above the Egyptians. Their rules in regard to marriage of relatives were important, and the punishments for the violations of the law concerning sexual relations were severe. They had strict regulations regarding the kind of animals whose flesh should be used for food; also concerning the method of slaughter and of the preparation of the flesh for food, which observances have continued among the Jewish people in modern times.

Although the medicine of the Jews in the latter part of their national existence had advanced in scientific thought and methods, yet in all it was but a mixture of ancient psuedo-philosophy with the germ of more complete science which had yet to come. Jewish Rabbis were practitioners and teachers of medicine, and before and after the destruction of Jerusalem had their disciples in the country from the Euphrates to the region of the Nile. The writings of some of the Rabbis afforded evidence of the possession of considerable knowledge of anatomy.

Dr. Edward Berdoe, of London, in his History of the Healing Art, writes favorably of the influence of Jewish medicine as follows: "In the Middle Ages the Jews rendered the greatest service to the healing art, and had a large share in the scientific work connected with the Arab domination in Spain. The great names of Moses Maimonides and Eben Ezra attest the dignity of Jewish intellectual life in the Dark Ages." Maimonides was a Jewish rabbi and philosopher, was born at Cordova, in Spain, about 1135, was a favored student of Averroes. He was in Egypt, and at about 1165 was physician to the Sultan Saladin. He wrote numerous and important works.

Professor Puschmann, of Vienna, in his History of Medical Education, closes his chapter on the Jews with these words: "Jewish doctors and philosophers exercised a beneficial influence upon the scientific development of medicinal science, especially in the Middle Ages, and have at every period maintained a prominent position in this domain of knowledge."

TRACHELORRHAPHY AND ITS INDICATIONS.*

By A. E. Benjamin, M. D.

Minneapolis.

There is probably no operation in gynæcology so common or important as that of trachelorrhaphy, and it is necessary that we become familiar with the concomitant symptoms of the lacerated uterus indicative of treatment, and the proper surgical procedure in cases necessitating operation.

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* Read before the Medical Club of Minneapolis, January 14, 1897.

We acknowledge there are extremists in the profession, some believing that few, if any, lacerated uteri needs repairing, and others that nearly all (even the virgin uterus when there is a fee in sight) should be operated upon. Some assert that a laceration of the cervix is necessary in the child bearing woman as it gives more of an opportunity for the secundines to pass and furnishes a better chance for drainage.

The reverse of this is often true; stricture of the canal may be present on account of hypertrophied glands or inter-glandular substance and fungoid growths.

Pryor does not believe reflex sensations are caused by the existence of a tear, and limits the operation to those cases where the rent reaches the vaginal mucous membrane and internal os. Notwithstanding all this controversy, who can deny or question the suffering of the woman, who once healthy and strong, after a confinement gradually develops dysmenorrhœa, menorrhagia or metrorrhogia. A muco-purulent or leucorrhœal discharge, backache, pain in the limbs and ovarian region, bearing down and weight in the pelvis, or in whom sterility or frequent miscarriages occur. With declining health, anæmic and weak, with little ambition and unsocial, irritable, nervous and cross, she is in no condition to rear and mould the character of the child she has brought forth.

The uterus prolapsed, cervix badly torn, everted and eroded lips, which are tender and sore, a hyperplasia of the adnexa·and subinvolution of the uterus and cervix, are often conditions found which have transformed the healthy, kind, social and loving wife into one with much the reverse disposition.

If we but anticipate these symptoms early in the married lives of our female patients, we can avoid suffering as well as protect the home.

Lacerations, according to Mundé, occur once in every four deliveries, usually at the birth of the first child, but produce symptoms in no more than half the cases. They are produced by rigidity and incomplete dilatation of the os, too rapid a delivery or by instruments, and are classified as unilateral, bilateral or stellate, superficial or deep.

We are able to recognize the variety of a tear by bimanual examination, and with subjective symptoms clear, an opinion of the necessity of an operation can be given also.

"The mere existence of a laceration does not call for an operation. The indications for the measure depend entirely upon the depth of the rent, on the erosion and eversion of the torn lips, on the intensity of the symptoms unquestionably or probably depending on it, and on the improbability of these symptoms being cured by other than radical means."

We may occasionally meet with cases in which a cervical laceration exists of little extent, but in which, for several reasons, we feel called upon to advise operation.

In these cases there may be no erosion or eversion, no fibro-cystic degeneration or disease involving the glandular or interglandular structure, no hyperplasia or endometritis, no symptoms of neuralgia from nerve filaments being bound in the scar tissue (any of which may indicate an operation), but the patient becomes morbidly impressed with the idea that she has a "torn womb" and will not be satisfied until it is restored. I believe, as many others, that the mental condition is a reasonable and justifiable indication for the operation, even though we only curette and put in one stitch.

There are cases where a bad laceration exists, but in which subjective symptoms do not manifest themselves until after the menopause or a rest from pregnancy for some time, and in these cases an operation may be indicated as surely as in the ordinary cases.

It has been a debatable question whether the previous inflammation of the cervix prevents the laceration from healing or not. Schroeder's opinion is that it does. Emmet thinks it is the laceration which provokes the catarrh and maintains the ulceration. At any rate we know that restoring the parts by operation does cure these cases when nothing else will, also dispels those general and reflex sensations so often present.

The immediate operation for laceration of the cervix is demanded at the time of childbirth when a severe hemorrhage occurs from a vessel in the rent, or when we can determine a less extensive one that might later cause trouble.

The varieties of operations for trachelorrhaphy are not many, Emmet's and Schroeder's being the more important ones and sufficient to consider, although the latter is not classed ordinarily as strictly a trachelorrhaphy.

The operation as performed by Emmet has been little improved upon, except in method perhaps.

It is selected usually for the more recent tears or chronic ones where there is but little nodular or sclerosed tissue; Schroeder's in older cases of much ulceration, erosion and eversion, hypertrophy and ulceration with stenosis of canal and ulceration with deep laceration.

Emmet's operation is performed with but few instruments, viz: Sims' speculum, two tenaculum forceps, long curved scissors, scalpel, uterine sound, heavy curved needle (Martin's type modified) and needle holder.

When a perineorrhaphy, curettement or hæmorrhoidal operation is indicated, I also add instruments necessary for doing these operations as well. (I think curetting should precede a trachelorrhaphy almost invariably.)

Placing the patient under an anæsthetic in the lithotomy position, the thighs well drawn up and held by assistants, the parts having been previously shaved, scrubbed and douched, are now rendered aseptic. Assistant retracting the perineum with the speculum and separating the vulva, the uterus is pulled down by the tenaculum forceps.

Dilatation and curetting are now performed.

The lips on either side of the central strip left for forming the canal are now denuded, being held firmly by means of forceps in the centre of each lip; care used in taking out enough at the angles and smooth surfaces made for approximation.

Remove one forceps, and with the other both lips are grasped in the centre.

Sutures are now passed of catgut or silk wormgut through the sides of both lips (remembering not to close the canal too tightly), removing all clots, tying quickly and placing a small gauze drain up into the canal and uterus.

By this method the operation is very simple and quickly done.

Douches of boric acid, used once daily, prevent the accumulations of secretions and aid repair.

The gauze is removed in twenty-four hours and the stitches in ten days, excepting when catgut is used.

Boroglyceride tampons may be used for some time after the operation, when a chronic metritis had existed, as it aids in reducing the uterus to its normal size and weight.

Augustin Goelet, of New York, in an article in the *Journal of the American Medical Association*, December 5, 1896, illustrates the use of a two-edged knife, bent at an obtuse angle, with which he transfixes the cervix, removing with a clean cut the portion to be got rid of, and with a backward stroke severs that at the angle.

This is a very unique method and seems that it may prove a more satisfactory instrument than the scalpel or scissors.

Schroeder's operation is performed by removing the inner portion of the cervix by a circular stroke of the scalpel or by the scissors, leaving the outer portion, cutting up high enough to remove all the diseased tissue, and by a transverse cut high up in the canal, the inner portion, including the mucous membrane lining the canal, is removed.

Now turn up the outer portions left and suture the centre of each lip to the edge of the transverse cut above, passing lateral sutures through both lips, thus shortening the portio vaginalis and making a new canal.

Operations on the cervix for a tear do not decrease the dilatability of the part. As a proof of this, I have attended a number of women during confinement who had previously been operated upon, without a laceration occurring.

1527 E. Franklin Ave.

It is said that about fourteen per cent. of medical graduates abandon the profession within a few years after they have finished their studies.

SOME LABORATORY DIAGNOSES.*

By C. H. Hunter M. D., and G. D. Head, M. D.

Minneapolis.

Some two years ago it was my pleasure to read before this Society a paper in which the value of laboratory work in diagnosis was dwelt upon, and special equipment and division of labor in this field was advocated.

I desire tonight to illustrate anew, in conjunction with some demonstrations by Dr. Head, the practical workings of the method. The equipment of a laboratory need not be extensive. Probably $300 would cover essentials. It has been our good fortune to have at disposal the quite complete outfit of Dr. Estabrook. Except for the simpler work, a great deal of time is required to gain that readiness and certitude of results that comes in any portion of our art with long experience, so that the point made that a community of practitioners of considerable size would do better to keep one of their number busy than for all to attempt to perfect themselves is confirmed.

In selecting cases to mention I have endeavored to pick those that illustrate groups of diagnostic problems, where the painful doubt in which we are left after the best use of inferential methods is cleared up by one stroke. All of us have experienced this uncertainty in the presence of certain lung cases of frequent occurrence.

I recall how earnestly Dr. Heitler, of Vienna, used to teach classes caution in prognosis in certain forms of pneumonia, how prone without apparent cause some forms are to continue on to quick consumption of the lung instead of the usual expected resolution. Sputum analysis now reveals the unapparent cause of the different course in the presence of the tubercle bacillus, and prognosis attains a certitude undreamed by inferential methods.

The first slide Dr. Head will show you is a case seen in consultation, which exhibited the following aspect: The man, age 45, had been sick two weeks with moderate fever, cough, abundant mucopurulent and purulent sputa, but never rusty. Chill and stitch in the onset had not been marked. There had been some cough, ill health and wasting before the attack. Moist râles were present in both lungs, more marked with some dulness over the lower left lobe. Is this a pneumococcus infection in slow resolution that can be awaited in confidence, or is the pneumonitis of tuberculous origin?

As you see, Dr. Head is able to demonstrate the presence of the diplococcus and the absence of the tubercle bacillus. We are all masters of the situation. We can say with confidence, "There is no fear of consumption." There is pneumonia in resolution. The man will get well speedily. Other features of similarity in these two infections are offered in the two following cases, including the rare occurrence of contagion, apparently.

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* Read before the Hennepin County Medical Society, January 4, 1897.

A young man of tuberculous family, tall, thin, subject to acne, to frequent colds and coughs, has a mild but frank attack of pneumonia. The apices are free, but on the history can the possibility of tuberculosis be safely ignored?

The presence of the diplococcus and the absence of the tubercle bacillus settles the question as soon as raised in the onset of the attack. The young man has made a good recovery.

On the fifth day of convalescence the benevolent attentions of the amateur nurse of the family had become assiduous; four days thereafter she had a mild chill and fever, severe stitch and cough and few physical signs localized in the right middle chest. The sputa are scanty and not rusty. Her father died of phthisis, but the course of her attack is that of a very mild pleuro-pneumonia.

The presence of the diplococcus is demonstrated. Stanley dwells on the deadly nature of the poison on the poison tipped arrows of the African pigmies, but this is the first instance I have known of cupid tipping his dart with the deadly pneumococcus. It is less virulent than the African poison, to be sure, as becomes the poison of a pure cultured and modern civilization.

This case of slight pneumonia had an unusual complication of urethritis and purulent leucorrhœa. A slight stricture with shreds had apparently retained another coccus in its usual haunts somewhat beyond the usual time, but in this attenuated form it was ready to sprout with sufficient vigor when transplanted to another congenial soil. The gonococcus from this case the doctor has on the slide for your inspection.

The frequency of infection, its persistence in the tissues, the nature of the complications from its habitat, entailing severe chronic ailments and loss of structure, and occasional virulence, force an attention to this coccus not hitherto accorded it. Recently I have had demonstrated the goncoccus in pus from an abscess in a seminal vesicle following the stretching of a wide, but deep stricture with an aseptic sound which in its turn followed a gonorrhœa contracted four years ago. The wife of two years had promptly an attack of "inflammation" the effects of which, ill health and sterility, are yet present.

In the catarrhal discharge from the seminal vesicles of a young man subject of stricture following gonorrhœa contracted some twelve years ago, the coccus has not been found. The young man wishes to marry. This demonstration will permit him to do so without anxiety. This leads logically to a scientific quarantine of this class of case.

Any person who has ever had an attack of gonorrhœa should not have our permission to marry until the secretions are known to be free from the gonococcus. You will recall Martineau's case of a widow who infected a second husband after several years of widowhood through a slightly but chronically inflamed vulvo-vaginal gland, an unsuspected bequest of her first marital venture.

In some twenty cases of this abscess treated surgically, I have found only one which I could not trace satisfactorily to a previous attack of the specific inflammation. I have never seen it follow a mechanical cause or other germ infection.

The next slide shows the plasmodium malariæ of Laveran. It is from a case kindly referred to my clinic by Dr. Peters. The man had a good deal of ill health of an equivocal sort, finally culminating in a chill which he declared was like those he used to have in Iowa nine years ago. Malaria was suspected and demonstrated as you see by Dr. Head. This man has lived for two years in the city in the low district at Fifth St. and Sixth Ave. North, at the beginning of his last pronounced attack. The previous seven years he had passed in northern Minnesota in a healthy locality. Another case sent to St. Barnabas in the service of Dr. J. T. Moore as one of typhoid fever, Dr. Bracken was able to demonstrate was not typhoid through the serum test, as you know a late development of laboratory methods. The patient had had in recent years malaria while living in Ohio. Her present fever was distinctly remittent in type. Several examinations of the blood did not show the plasmodium, so that in a negative way these methods save us from warranted conclusions.

In two recent cases of diphtheria it has been extremely desirable to raise early the quarantine of the Board of Health. By the end of ten days we were able to demonstrate the absence of the Klebs-Loeffler bacillus. The children were allowed to return to school with harm to no one. On the other hand the bacillus has been shown to exist long after the raising of usual quarantine—nine months in the case reported in the Johns Hopkins Hospital Reports.

This raises the question whether the time element in quarantine of diphtheria is not fallacious. Whether it should not be considered apart from the exanthemata, and the placing and the raising of quarantine made to depend upon the demonstration of the presence or absence of the bacillus.

That every health board of any efficiency now has or should have the services of a competent bacteriologist is no longer considered, I believe, a debatable question. How far such an official should serve the general practitioner free of charge should not be an open question. It should be only so far as it pertains to the public service for the public health. Any other stand for the profession would be just as suicidal as is the over doing of any public charity, be it those of hospitals, dispensaries, lodges or municipalities. It would also be socialistic, demoralizing and pauperizing for the general community.

A city or state laboratory without a tariff for service rendered would be as insidiously corrupting to the body politic as are tariff favors in other relations. *Quid pro quo,* no favors, and private initiative are the true rule of professional dignity and interest.

REMARKS ON THE USE OF COQUILLE GLASSES.[*]

By J. H. James, M. D.

Mankato, Minn.

Coquille spectacles are now seen in daily use upon our streets, and even in the country they are not at all uncommon. They have rapidly displaced the old-time goggles as a protection to the eyes from dust, wind and the too bright light or glare of the sun's rays. Often they are prescribed for persons suffering with photophobia and to modify the light during the use of a mydriatic. Owing to their cheapness they have become so very common that almost every drug, jewel, and hardware store and junk shop have them in stock.

They are prescribed by every peripatetic spectacle peddler, and are often self prescribed without knowledge of the detrimental effects that may follow their indiscriminate or extended use.

Colored glasses should never be worn unnecessarily, nor should they be of a deeper shade than is just sufficient to accomplish the desired result. The darker shades so diminish the light that the eyes are strained in groping about, and after a time their sensitiveness to light becomes aggravated and they become a positive necessity; therefore they should not be worn indoors where the light can be modified by other means.

For a long time I have been aware that oculists did not favor coquilles for prolonged use, because of the imperfections of their refractive surfaces. Most of them contain stria or wavy lines that divert the rays of light, and cause spherical aberrations which are annoying as well as detrimental to good vision; and, because of this, oculists prefer to prescribe plain colored glasses with large eyes.

There is, however, a greater reason for discarding coquilles than those already mentioned, which was recently disclosed by Dr. S. D. Risley, of Philadelphia, in which he shows that these coquilles, as they are called, are not neutral glasses, as they should be, but are lenses, and therefore unfit as a rule for use.

My examinations and observations have convinced me of the accuracy of his conclusions, and that under no circumstances should they be prescribed without first ascertaining their refractive power or where others cannot at once be obtained. The circumstances which led the doctor to make the discovery was that a young lady patient, while wearing a pair of smoked coquilles during a period of mydriasis (the pupil having been dilated to aid in the examination and correction of a refractive error), complained that the smoked glasses aggravated her distress. On examination he discovered that the optician had supplied her with smoked coquilles which were lenses. The right glass proved to be a —0.50 cylinder axis at 90° combined with a 1° prism base at 30°. As there was a refractive error corrected by a +0.50 spherical combined with a +0.50 cylinder axis at 90°, the smoked coquilles had raised the hypermetropia in the horizontal meridian to 1.50 D.

The left glass was —37 cylinder, axis at 45°, combined with a 1° prism base at 150°. The refractive error in this eye was corrected by a +0.50 s. combined with a +0.50 cy. ax. 90°, so that there could not have been otherwise than an increased discomfort, since the refractive error was increased by them, but the already overtaxed weak internal rectus muscle was increased by the prism with the base up and out. This discovery led the doctor to have a dozen pairs of coquilles (in original package) examined, which disclosed the fact that not a single pair was neutral. A subsequent dozen was found no better than the first. Impressed by this I examined half a dozen pairs of my own, supposed to be of superior quality, which I keep on hand to loan to my patients during the period of mydriasis while adjusting glasses, but I found to my surprise that there was not one but had a prism combined with a spherical, a cylinder, or both, in one or both eyes.

I then went to a druggist and obtained a half dozen of the cheapest ones I could get, believing that if mine which I had purchased because of their supposed superior quality were so defective, I should find the cheaper ones much worse, but, to my surprise, they were not. Among these there was but one pair that did not combine a prism in one or both eyes with a spherical, a cylinder, and sometimes both, and sometimes there was a double prism.

Among the dozen pairs thus examined there was not one but that would produce an artificial ametropia, such as oculists are daily called upon to prescribe for. Not only is an artificial ametropia produced, but for one who has an unrecognized hyperopia or hyperopic astigmatism, causing no discomfort, the use of any one of these glasses would undoubtedly be the last straw to break the back of endurance, and the physician or oculist would thus gain a patient.

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[*] Read at the Semi-Annual Meeting of the Southwestern Minnesota Medical Society, January 14, 1897.

The heterophoria thus artificially produced is such as ofttimes causes great discomfort; and when combined with ametropia, could scarcely fail to produce asthenopic symptoms and serious results in all but those of robust physique with plenty of reserve nervous force.

I have searched my text-books in vain for any remarks upon the above subject, except the following in Harlan: "Eye sight and how to take care of it." "Cheap protecting spectacles are often made of poor glass and contain flaws which produce an unpleasant distortion of objects seen through them." "Coquilles, or shell glasses (those shaped like a watch glass), if their surfaces are not parallel, may act as weak lenses to a noticeable and even annoying degree."

526 South Second Street.

TAKING COLD.

By J. H. Martindale, M. D.

Minneapolis.

This paper, which may be regarded as a professional "skit," so semi-popular is its subject matter, suggested itself to the mind of the author on the occasion of the last meeting of this Society, and when upon the discussion of a paper by Dr. Eitel, doubt was expressed as to whether the condition known as taking cold could arouse the latent energy of a disease such as that under discussion at the time.

Anything, of course, which reduces the resistive power of the organism, or the cellular activity of the organism, must of course provide a good soil for the development of, or the resuscitation of any pathogenic cell activity within the organism. Such a condition of non-resistance, as a result of what is commonly known by the very unmedical nome of "taking cold," it shall be the humble purpose of this paper to endeavor to show. Taking cold is often confounded in the medical, as in the lay mind, with its more common symptoms, such as coryza, rhinitis, pharyngitis and laryngitis, all of which however are consequent upon, and in no wise antecedent to, the condition known as taking cold. The etiological factors concerned in producing it are as definite and recognizable as those of any disease.

In the very first place we must recognize the fact, that absolute cold, and taking cold, are two very distinct things; cold has no absolute sense; it is only diminished heat, accompanied by relative sensations. In entering the subject we are confronted by the theories first of Rosenthal and then of Seitz. Rosenthal maintains that the taking of cold is effeeted by the largely physical action of cold acting on the surface of the body, exciting thereby contraction in the peripheral vessels, by which the blood is driven from the surface in upon the internal organs, and acts there as an irritant exciting inflammation of the more important viscera and organs. This view of the question is somewhat mechanical, and does not entirely elucidate every phase of the matter. Furthermore, as we know, mere mechanical congestion does not lead to true inflammatory action, as shown by the familiar and oft repeated experiment of ligating the efferent veins of the frog's foot, and observing the result in the web under the microscope. The theory of Seitz is that disorders arising from catching cold are due to the removal of heat to an unusual extent from the external or internal surface of the body; that this in turn gives rise to some functional disturbance which in its turn gives rise to certain morbid processes in some other remote portion of the body. That the morbid changes are *not* due to the immediate or mechanical effects of this exposure, is manifest in the fact that as a rule a certain length of time elapses ere these changes set in.

Yet in this connection it is worthy of note that the fever associated with these colds is not a symptomatic but an essential fever, as is shown in the fact that it stands in no constant relation to the morbid changes, since in even slight colds we may have the febrile condition more marked than in the fever which accompanies the more aggravated forms of inflammatory troubles, which may result from a cold. Moreover, the fever generally sets in immediately after exposure, and when the latter morbid changes appear, no increase, as a rule, of fever is noted. Dr. F. H. Bosworth, who in his book upon the diseases of the respiratory tract, has given quite an interesting chapter upon "taking cold" (which I take the liberty of quoting to some extent in this paper), inclines mainly to the views of Seitz, but he believes, in addition, that the true manner in which cold effects its derangement of the economy, is through its action on those nutritive changes which are constantly going on, and by which the animal heat is developed.

The direct action of the cold is as a rule upon a limited portion of the body, but the resultant condition takes place in some distant organ where already a mild inflammation is going on (most likely pharynx, larynx or nares), which is started into an acute process as a result of the cold. Bosworth likens this to a chandelier say of six jets; if these are all lighted at once, cach flame is steady and equable; if now four or five jets are turned off, the remaining one flares up with a fitful but increased intensity. In like manner, continues Bosworth, "when nutritive changes in one portion of the body are interfered with by cold, a more intense nutritive activity is produced at a part, or parts, remote; and this nutritive activity constituting inflammation, soon presents all of the familiar phenomena of a cold". To me it seems that in addition to the mechanical theory of Rosenthal, and the mechanico-nutrient theories of Seitz and Bosworth, we should regard it as a disease of vaso-motor derangement, in many ways resembling greatly in principle, if not in degree, those recognizedly vaso-motor diseases, asthma and hay fever.

Before passing on, we should take note of two etiological factors, which careful observations have established as invariable: 1st, that subjection of the person to a change from cold to heat (especially heat co-jointly with non-ventilation), is much more dangerous than the reverse. 2nd, that subjection of the body *in toto* to the cold (short of cold so intense as to interfere with function), does no harm; it is only when a limited portion (notably the feet, back, or neck), is so exposed, that a cold is to be apprehended. In short, and to capitulate, we have, I believe, in taking cold, a vaso-motor neurosis, with, as its predisposing cause, an unstable vaso-motor condition; and as its exciting causes: 1st, sudden changes of temperature, directed to a limited portion of the body alone, thus deranging the vaso-motor equipoise; and, 2nd, a preëxisting lesion, or inflammation of a part of the body (usually the upper respiratory tract). If this be true, we have then a disease, dangerous in itself, and more so as a precursor of other diseases, and not so jocularly and slightingly to be alluded to, as "only a cold."

409 Dayton Building.

FISSURE OF THE ANUS.*

By C. M. Ferro, M. D.

Lecturer on Rectal Affections at the College of Physicians and Surgeons of Minneapolis.

Among the whole category of painful affections that afflict humanity, it is quite safe to say that no other lesion of such an insignificant character, as regards its morbid anatomy, is capable of producing so much distress and discomfort as the one under consideration. It is by no means uncommon, and is quite frequently associated with other affections of the anus and rectum. It may be confounded with neuralgia of these parts, or contiguous tissues, blind, internal fistula, hemorrhoids and affections of the adjacent organs, uterus, bladder and prostate gland. It may be situated on the verge of the anus, involving the muco-cutaneous integument, or within the grasp of the internal sphincter, occupying the mucous membrane alone.

In size it may be so small as to evade the notice of the surgeon, unless special effort is made to locate it. In form, it may be oval, almost round, or when situated between natural folds of integument, very much elongated, as a crack or a fissure. In cases that are recent in their development, the floor or surface of the ulcer is red, and the ulcer is superficial, while in those of a chronic character, the surface is gray, looking very much like the color of wet chamois skin, while the edges are indurated and somewhat raised above the surrounding tissue. Pain of a paroxysmal nature constitutes a very important element in the diagnosis. This pain may be of a smarting, burning, throbbing and aching character, occurring during the passage or expulsion of the fæces or soon after, and may be quite transitory, lasting an half hour or so, or it may be prolonged over several hours; it may occur during the night, arousing the patient from a sound sleep; it may develop after some unusual muscular effort, or at times after coughing or sneezing; it is frequently atrocious and produces the most indescribable agony. I recall to mind one instance where a lady was regarded by her friends and neighbors as crazy for two or three days. Patients of a nervous temperament suffer much more distress than those who are less nervous, and the affection is more common in women than in men. It may result from traumatism or the passage of hardened and dry fæcal masses, the rupture of a hæmorrhoid, by the use of the hypodermic syringe in endeavoring to cure piles by the painless method.

Treatment may be described as palliative, and operative and curative. It might seem useless to devote any time to the discussion of the former, but there are patients who are so timid that they would prefer almost anything to an operation, and it is quite well to tell these patients that in many cases it is not necessary to resort to the knife. Bodenhammer, who has had a very large experience in the treatment of these cases, relied a great deal upon local treatment and gradual dilatation of the parts.

The palliative treatment, may, in very recent cases, accomplish a great deal, but the great majority of cases that present themselves for treatment are chronic. The patient should be directed to take compound licorice powder in one or two teaspoonful dose, once daily in a half glass of water, preferably in the morning. The aim should be to secure one thorough movement of the bowels daily, a movement that is secured without much straining and griping. The ulcer may be lightly touched every two, three or four days with nitrate of silver or carbolic acid or citrine ointment, first rendering the parts somewhat insensitive by the use of local applications of cocaine.

In chronic cases these measures will not accomplish much, and it becomes necessary to temporarily paralyze the sphincter muscle by division or dilatation. As we have remarked, Bodenhammer prefers the method of gradual dilatation, but undoubtedly the most satisfactory method to adopt is to place the patient under an anæsthetic, and accomplish in a few minutes what it takes weeks to effect by the gradual method. Recamier first recommended this procedure; it was endorsed by Maisonneuvre, who advised the introduction of the hand into the rectum, closing the hand and forcibly withdrawing it, and this he did without chloroform. Now, the method to be adopted is first to direct the patient to secure a thorough evacuation of the bowels by the administration of some efficient cathartic, and then direct that the rectum be well washed out with a copious flushing of warm water. The patient is then placed under chloroform, the thumbs are inserted into the anus and the sphincter muscle is gently but forcibly stretched to its fullest extent, without rupture of the muscular fibres. The location of the fissure should be determined, and the thumb should at first cover this part to prevent undue tearing. It is best to execute this in a slow manner; the thumbs should be moved little by little until the entire circumference of the muscle has been embraced. This process usually occupies five or six minutes. Some authorities advise the use of the speculum instead of the thumbs. I have usually found that the thumbs were capable of accomplishing all that is desired, though there are some cases where the sphincter muscle seems to have become thickened, and the speculum may be used at first and the thumbs afterwards. When the muscle has begun to yield, the thumbs should be substituted. If the muscle is greatly thickened and the fissure is very chronic, it is always best to incise the superficial fibres at the bottom of the ulcer, and in some cases that are complicated with fistula or hæmorrhoids, permit the incision to extend quite deeply, especially in cases that are located within the internal sphincter muscle. If the dilatation has been thorough and the relaxation of the muscle complete, the irritable fibres at the base of the ulcer divided, the parts have been placed in the ideal condition to insure a satisfactory cure. If the parts have been thoroughly stretched, there will develop quite a remarkable amount of ecchymosis, which soon disappears and need cause no anxiety. The parts after dilatation may be thoroughly washed with warm sterilized water, carefully dusted with iodoform and vaseline. A very grateful application may be made by applying compresses that are wrung out of hot, carbolized water for several hours following the operation.

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* Read before the Minnesota Valley Medical Association, December 1, 1896.

There is often an hypertrophied tag that is situated on the upper part of the fissure, or it may be at the lower part. Wherever situated, it should in all cases be excised, if we wish to be sure of success. The treatment of the these cases by forcible dilatation, supplemented in many of them by the division of the irritable fibres of nerve and muscular tissue, is the treatment that will give your patient absolute and certain relief. Too often these cases are regarded by the patient, and often by the physician, as hæmorrhoids, the parts are not carefully inspected, a salve is prescribed, the patient is dissatisfied and finally falls into the hands of the peripatetic pile-puller, and legitimate medicine is not permitted to win the laurels that are due it and that it is capable of earning.

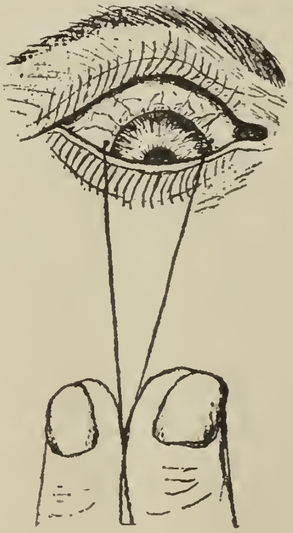
HOSPITAL AND CLINICAL MEMORANDA.

HANDY METHOD OF HOLDING THE EYE STEADY WHILE OPERATING FOR ENUCLEATION.

Unfortunately I have been obliged during the past two years to enucleate quite a number of eyes, and until within two years I have always followed Arlt's method of holding the eye.

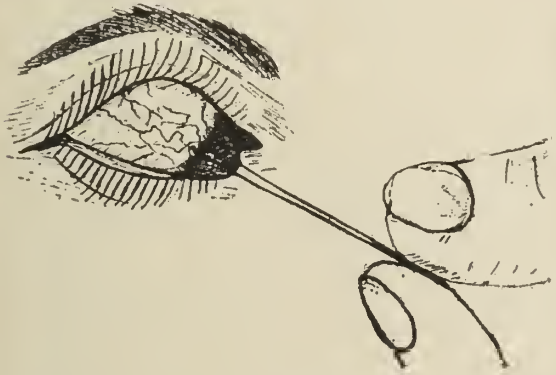
About that time I found it necessary to enucleate three eyes within a week, the first being a badly shrunken globe following an injury. The operation was much more difficult than usual, because of the softness of the globe. My fixation forceps tore through the conjunctiva during the manipulation.

It then occurred to me that I could hold the eye easily by passing a strong ligature through the



globe. This I proceeded to do, using a curved needle threaded with a No. 4 braided silk ligature.

I entered the eye just posterior to the sclero-corneal junction, coming out on the opposite side, going behind the lens capsule. Bringing the two ends of the thread together in front of the eye, I gave them to an assistant to hold. The line of traction then being central instead of to one side, as when held by fixation forceps, the dissection of the ocular conjunctiva and muscles was easily made, the eye being drawn to the one or the other side as the muscles were being severed.



Since that time I have always used this method of holding the eye, and it is remarkable how quickly the enucleation can be made after the thread has been passed through the globe.

I would not advise going through the cornea with the needle on account of the possibility of allowing an escape of part of the aqueous, thereby causing the globe to be more or less softened.

The accompanying cuts indicate the position of the ligature and the method of holding the eye. The stop speculum is not shown in the cuts.

James W. Robertson.

Litchfield, Minn.

Effects of Bromides.—These in excess often produce very peculiar results, and the symptoms for the alleviation of which they are taken become much worse, especially during menstruation. They may cause delusions and suicidal tendencies; irritability of temper is a frequent result. They have some effect on the urine. In chronic cardiac asthenia the symptoms often grow worse under their use, and a tendency to ptosis is common. They may produce paresis and an inability to walk, sometimes more marked on one side of the body than on the other, simulating hemiplegia. They lead to failure of the memory, going on to partial paresis and involuntary movements of the bowels. To be sure, these extreme cases are rarely seen, but the reckless use of bromides with laymen is apt to cause them. I recall a case of Jacksonian epilepsy in which the child's father (a druggist) argued that if sixty grains daily would keep the disease in check, two or three times that amount ought to cure it; and the child sank in a heap after taking the larger dose, and became an imbecile, but improved when bromide as withdrawn. Of two children taking bromide of lithium, one lost all memory of words, the other all idea of time. Suicidal tendencies and melancholia occurred at the menstrual epoch in a lady who had been taking a drachm of potassium bromide daily for four years, but these disappeared when the drug was withdrawn, and only reappeared when she resumed it subsequently. Do not deluge patients with bromides, especially in cases of epilepsy.—*S. Weir Mitchell.*

A medical writer makes the following distinctions in defining illusion, hallucination and delusion:

1. An *illusion* is a false perception of a real sensorial impression.
2. An *hallucination* is a false perception without any material basis.
3. A *delusion* is a false belief; the patient accepts his false perceptions as facts.

In a recent lecture Dr. E. P. Davis advised the use of the following as a useful form of *enema* to give patients of constipated habits in order to cleanse the lower bowel of masses of hardened fæces:

Castile soapsuds	1 quart.
Spirit of turpentine . . .	½ fluidounce.
Castor oil	1 fluidounce.

In order to make an emulsion the yolk of one egg should be mixed with the above. The enema should be given from a fountain syringe, a rectal tube being preferred to the ordinary nozzle. This injection may be repeated until the bowel is well cleansed.—*Polyclinic.*

It is said that gelsemium is one of the best remedies for the relief of "cold in the head;" drop doses of the fluid extract given hourly will usually secure the best possible results. Given with quinine, gelsemium prevents ringing in the ears. It is also almost a specific in ovarian neuralgia. The physiological effects are ptosis and dimness of vision, which, however, are readily dissipated by means of amyl nitrite or small doses of any good spirituous liquor.

Northwestern Lancet.

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THE PHYSICIAN'S LEGAL RESPONSIBILITY FOR SEPTICÆMIA.

There has just been finished in this city the third trial of a suit for malpractice against a local physician that has brought into court some points of medico-legal interest that have not as yet been passed upon by courts of law. The several trials of this cause, including one appeal to the supreme court, have unfortunately turned rather upon legal than upon medico-legal points, so that no definite decision has yet been given as to the responsibility of the medical man in this and similar cases, but the last trial, in which the defendant is supposed to have been saved from being mulcted in heavy damages only by the holding out of one member of the jury who forced a disagreement, shows that medical men must expect the courts to hold them to account for neglect of all possible precautions demanded by the teachings of the most advanced antisepsis.

The plaintiff in the case is a woman who called the defendant physician to attend her during a miscarriage at about five months. Another physician who saw the patient on the twenty-third of October stated that she was flowing and had intermittent pains, while her general appearance corroborated her story that she had been flowing for five or six weeks. He thought there was slight fever but could not remember that he had taken her temperature. No other evidence of sepsis was present at that time. The plaintiff swore that when he saw her first on October twenty-five she presented a pronounced case of septicæmia, with high temperature, 103½°, pulse 130 or 140, a bad odor from the flow and a thrombosis of the left leg, which was swollen, of a blue color as high as the knee and without sensation. He found the placenta presenting at the os, which was slightly open, and the hemorrhage free. On the night of the twenty-ninth of the month the woman was delivered, the placenta coming first before the arrival of the defendant physician, who however extracted the child. He afterwards made five visits, the last on November fifteen. Five days later, on November twenty, another physician was called who found the left leg in an advanced state of gangrene, two bed sores upon the woman's back and a considerable vaginal discharge with foul odor. Upon examining the uterus there was found in the cervical canal a piece of placenta about two and one-half by one and one-half inches in dimensions. This was removed and nine days later the leg was amputated.

This is the substance of the testimony of the medical men who saw the case. The plaintiff's story and that of her friends is materially different, and is to the effect that after the miscarriage the flowing continued for eight or nine days and was so severe that she fainted repeatedly; that the defendant applied iced water and vinegar externally to stop the flow; that at about the time the flow stopped, she first had trouble with the leg, beginning with a pain and numbness in the foot upon which a black spot soon appeared. During this time she also had one or two chills besides the symptoms of fever.

The liability of a physician charged with malpractice depends entirely upon the question of negligence. This is clearly set forth in an opinion delivered by the late Chief Justice Gilfillan, in these words:

"A physician or surgeon is not an insurer that he will effect a cure. He is held to a reasonable amount of diligence and skill, unless he contracts to do more, and is liable only for injuries that result from his neglect to exercise that degree of diligence and skill. It is not expected that he should come up to the highest standard of skill known to the profession; for in his profession, as in others, natural genius and unusual industry, learning and experience may enable some of its members to obtain a preëminence that it would be vain to expect in the great majority. Any person claiming a cause of action for neglect to employ the degree of diligence and skill required must prove such neglect, and that the injury or want of cure resulted from it."

The chief questions of medico-legal interest in this case are: Was the defendant negligent in not exploring the cavity of the uterus after the miscarriage? Were the septic phenomena caused by the retained placenta? Is it probable that sepsis existed at the defendant's first visit on October twenty-five, four days before delivery, as claimed by him?

The propriety of exploring and curetting the womb after miscarriage is a question upon which medical opinion is unsettled. Between the extremists on the one hand who curette as routine practice after abortion, and on the other hand those who carry the let alone principle so far that they recognize hardly any indications for interference, lie the great bulk of the intelligent members of the profession, who are content to leave the case to nature while all goes well but stand ready to take active measures if signs of trouble appear. The principal unfavorable symptoms demanding interference after miscarriage are fever; prolonged or excessive flowing; bad odor from the discharge. Fever and a foul discharge imperatively demand either the intrauterive douche or the curette or both. The urgency is less where there is merely a prolonged or excessive flow, without other symptoms, and there is room for an honest difference of opinion as to what constitutes an excessive flow after miscarriage. In absolutely normal cases the flow is all over in two or three days, but on the other hand it may last a couple of weeks without harm.

As to the rôle of retained secundines after miscarriage in the causation of septic phenomena, opinion is well settled that they greatly increase the danger by furnishing a culture medium for the development of septic germs. In the light of present knowledge the presence of the specific germ is the prime cause of septicæmia, but clinical evidence all goes to show that infection especially follows the retention of portions of placenta or membranes. The plaintiff in this case claimed the retention of the fragment of placenta as the proximate cause of the damage done, and Judge Gilfillan's ruling on this point is quoted as follows:

"In cases of tort, the application of this court, of the rule as to proximate cause is this: That where several concurring acts or conditions of things—one of them, the wrongful act or omission of defendant—produce the injury, and it could not have been produced but for such wrongful act or omission, such act or omission is the proximate cause of the injury, if the injury be one which might reasonably be anticipated as a natural consequence of the act or omission."

The defendant claims that sepsis with gangrene of the leg was already present on the twenty-fifth when he made his first visit. It is certainly uncommon, to say the least, for septicæmia to advance so far before delivery as to produce gangrene, and it is difficult to reconcile this condition of things on the twenty-fifth, with that described by the other physician who saw the patient on the twenty-third and detected nothing wrong except the flowing, "intermittent pains" and "slight fever," the latter not measured by the thermometer, in fact such a state of affairs that the doctor says: "I didn't look upon it at the time as a case of septic trouble. I looked upon it at the time as a case of plain hemorrhage, uncomplicated at the time. I did not observe anything wrong with her limbs."

CORRESPONDENCE.

THE MEASUREMENTS OF CONSUMPTIVES.

Editor of Northwestern Lancet:

Sir: Will you kindly give space to the following in an early issue, and thus aid in this important work? Of course, without the coöperation of the leading medical journals, nothing can be accomplished in that behalf.

To members of the medical profession, individually, in the interest of medical science:

As there is evidence tending to prove the theory that all persons predisposed by heredity to consumption have a respiratory capacity or action insufficient for good vigorous health, probably a proportionately small chest with insufficiency of lung membrane, that the predisposition is mainly or primarily due to this cause; in other words, that the insufficient respiratory function is the special primary feature of the predisposition (a condition which may be, practically, acquired by habit, occupation, etc.), I desire the coöperation of the profession in an endeavor to help to establish, by means of collective investigations, the correctness or otherwise of this theory.

In this behalf I hereby ask all physicians who have patients predisposed to, or in the early stage of, consumption, to send to me on a postal card the information below indicated. As soon as I can study and collate the replies, I shall make the results known to the profession.

Give (1) name (or initials); (2) sex; (3) age; (4) occupation; (5) height; (6) weight (average, when in usual state of health); (7) circumference of the chest on the level with sixth costo-sternal articulation when momentarily at rest after an ordinary expiration, and also (8) after habitual natural expansion or inspiration (which last (8) usually exceeds the first measurement, expiration (7), by an increase of only about one-fourth of an inch); finally (9), the circumference after a *forced* expiration and also (10) after a forced inspiration (these two measurements, 9 and 10, varying or showing a range of from 1½ to 4 inches). The patient should, of course, be as calm as possible, and had better, usually, practise the forced breathing for a few acts before these last two measurements, 9 and 10, are taken.

To be of value, all four measurements should be taken as carefully, accurately and free from haste as possible.

Any further information, in brief, as to degree of heredity (family history) in cases, prominent symptoms, loss in weight, cough, dullness on percussion, etc., etc., or any remarks, will be a decided advantage.

Measurements of two cases, or several, or the average, could be given on one card.

With the hope that many will comply with the above request, and with much respect for and interest in the profession, I am,

Yours truly,
EDWARD PLAYTER, (M. D.)
(Address) Ottawa, Ontario.

REPORTS OF SOCIETIES.

MINNESOTA VALLEY MEDICAL ASSOCIATION.

E. D. STEEL, M. D., SECRETARY.

SIXTEENTH ANNUAL MEETING, at Mankato, Tuesday, December 1, 1896, the President, Dr. STRICKLER, in the chair.

The minutes of the previous meeting were read by the Secretary, and, on motion, were approved.

The report of the Executive Committee was submitted as follows:

We, your Committee, having carefully inquired into the professional standing and moral qualifications of the following named gentlemen, whose names have been proposed for membership, would recommend that they be elected to membership in this Association:

Dr. W. W. HOLDEN, of Amboy. Graduate of Keokuk in 1881.

Dr. BENHAM, of Madison Lake. Graduate of University of Minnesota, 1894.

Dr. J. A. BROBERG, of Delavan. Graduate of Ann Arbor, 1892.

Dr. F. D. BRANDENBERG, of Mankato. Graduate of Belleview, 1885.

Dr. C. H. KOHLER, of Minneapolis. Graduate American Medical College of St. Louis.

Dr. G. E. CHAMBERLAIN, of Waterville. Graduate of P. & S. of Chicago.

On motion the report of the Executive Committee was accepted, and the Society proceeded to ballot on the names recommended, with the result that Drs. W. W. HOLDEN, J. A. BROBERG, C. A. KOHLER, BENHAM and G. E. CHAMBERLAIN were each duly elected to membership in this Society.

The annual report of the Treasurer was presented by Dr. J. H. JAMES, and on motion was accepted.

The attention of the Society was called to the fact that the State Medical Society would meet in Mankato next June, and on motion the President was instructed to appoint a committee to act with the Executive Committee of the State Medical Society as to some entertainment of the members of the State Society during their meeting. The Chair appointed Drs. ANDREWS, COOLEY, DAVIS and STEEL such committee, with instructions to report at the afternoon session.

The Society then proceeded to the election of officers, with the following result:

President: Dr. J. WILLIAMS, of Lake Crystal.
First Vice President: Dr. M. J. TAYLOR, of Janeville.
Second Vice President: Dr. A. E. SPALDING, of Luverne.
Third Vice President: Dr. F. A. DODGE, of Le Sueur.
Treasurer: Dr. J. H. JAMES, of Mankato.
Secretary: Dr. E. D. STEEL, of Mankato.

The newly elected President was called upon and made a few appropriate remarks, thanking the Society for the honor of his election.

The retiring President, Dr. STRICKLER, then read his address on

EXPERIMENTAL THERAPEUTICS.

See page 81.

The paper was very generally discussed, and especially as to its bearings on vivisection and the proposed state antivivisection law, and on motion of Dr. E. J. Davis a committee was appointed on legislation and to act in this matter in accord with the views of the President in the above address, and coöperate with the Committee on Legislation of the State Medical Society. The Chair appointed Drs. J. H. James, B. Foster and A. E. Spalding as members of the committee.

A paper entitled

X-RAYS,

by Dr. Danforth Cole, of Minneapolis, in the absence of the author, was read by the Secretary.

On motion a vote of thanks was extended to Dr. Cole and he was invited to meet with the Society at its semi-annual session.

The Committee on Legislation and Dr. Strickler's paper made the following report:

Resolved: That we view with grave apprehension the attempts recently made to bring about legislation which shall prohibit the practice of vivisection, believing that such legislation would place an impassable barrier in the path of medical progress and would seriously interfere with veterinary science in its efforts to protect the lives of domestic animals from the ravages of infectious diseases.

Resolved: That we consider it of the utmost importance to the commercial prosperity of those inhabitants of this State who are engaged or interested in the breeding and raising of stock, that the State Legislature should take into consideration the importance of modern bacteriology in its relation to veterinary as well as to human medicine, and that suitable and sufficient appropriation should be made for the purpose of encouraging and supporting the various public laboratories which are engaged in investigating these and kindred subjects.

Resolved: That a copy of these resolutions be sent to each member of the State Legislature, and also be placed on the records of the Society.

On motion this report was unanimously adopted.

A clinic on double congenital dislocation of the hip was then presented by Dr. J. E. Moore.

The Society then adjourned to 1:30 P. M.

On reassembling the Committee on the Entertainment of the State Medical Society made the following report:

We, the undersigned, as a Committee, do recommend that the meeting of the State Society, to be held in 1897, in Mankato, be held under the auspices of this Association and be entertained by them one evening of the session, by banquet or otherwise, and would recommend that an assessment of $5.00 per member be levied by this Society for said purpose. We therefore recommend the following:

Resolved: That the Minnesota Valley Medical Association, in convention assembled, hereby extend to the State Medical Society an invitation to meet under the auspices of this Association at its next regular meeting, to be held in Mankato in June next.

Resolved: That the Minnesota Valley Medical Association entertain said State Society one evening during its session by banquet, or otherwise, as may be hereafter determined by the Committee.

Resolved: That an assessment of $5.00 be levied upon each member of this Association to defray expenses of above.

J. W. Andrews,
C. O. Cooley,
E. J. Davis,
E. D. Steel,
Committee.

On motion the above resolutions were unanimously adopted.

Next followed a paper on

CLUB FOOT,

by Dr. J. E. Moore, of Minneapolis (see page 27), the discussion of which was opened by Dr. A. J. Gillette, of St. Paul.

Next followed a paper on

OSTEOMYELITIS,

by Dr. G. G. Eitel, of Minneapolis (see page 61), the discussion being opened by Dr. F. A. Dodge, of Le Sueur.

A paper entitled

THE PATHOLOGY OF APPENDICITIS,

by Dr. L. A. Fritsche, of New Ulm, was next presented.

Dr. A. E. Spalding, of Luverne, led the discussion, taking up the treatment of the disease.

ANÆSTHETICS

(see page 90), was the title of an able paper by Dr. E. J. Davis, of Mankato, which was followed by a general discussion.

A paper on

MONSTROSITIES,

by Dr. F. A. Dodge, of Le Sueur, and one on

FISSURE OF THE ANUS,

(see page 109), by Dr. C. M. Ferro, of Minneapolis, completed the session.

The following members were in attendance: J. H. James, J. Williams, O. C. Strickler, E. D. Steel, C. O. Cooley, J. E. Moore, E. B. Everett, F. H. Knickerbocker, M. Sullivan, J. W. Andrews, F. A. Dodge, W. Jacoby, W. H. Rowe, C. F. Warner, C. J. B. Hirsh, E. J. Davis, B. Foster, J. W. B. Welcome, Jr., W. S. Smith, G. R. Pease, J. G. Schoch, G. F. Merritt, Z. J. Harrington, J. F. Fulton, J. F. Cullen, J. P. Humes, L. A. Fritsche, A. J. Gillette, F. J.

Bohland, J. Bishop, J. D. Webster, C. M. Ferro, Wm. Frisbie, D. L. Cummings, G. S. Smart, A. E. Spalding.

The visiting physicians were: Dr. G. G. Eitel, of Minneapolis, Dr. John Rogers, of St. Paul, Dr. W. H. Powell, of Kasota.

The Executive Committee for the ensuing year was appointed by President Williams as follows: Z. G. Harrington, Chairman; F. A. Dodge, A. E. Spalding.

The names of the following physicians were presented for membership at this meeting, and are now before the Executive Committee for consideration and report at next meeting:

Dr. John Rogers, of St. Paul. Graduate of University of Minnesota. Passed State Board.

Dr. Burnside Foster, of St. Paul. Graduate of Harvard. Passed State Board.

Dr. G. G. Eitel, of Minneapolis, Graduate of Minnesota Hospital College and Bellevue. Passed State Board, 1891.

Dr. E. Fischer, of New Ulm. Passed State Board.

Dr. W. H. Powell, of Kasota. Graduate of P. and S., of New York, 1875. Passed State Board.

Dr. Mary Bassett, of St. Peter. Passed State Board.

Dr. W. D. Flynn, of Redwood Falls. Graduate of the College of P. and S., Chicago. Passed State Board.

Dr. Thomas Sullivan. Graduate of McGill. Passed State Board.

RAMSEY COUNTY MEDICAL SOCIETY.

Charles R. Ball, M. D., Secretary.

Regular Meeting, November 30, 1897. The President, A. J. Gillette, M. D., in the Chair.

Four new members were elected by the Society.

The committee appointed to reconstruct the Constitution and By-Laws of the Society made its report. Among the important changes suggested by the committee was the change of name from "Ramsey County Medical Society" to the "St. Paul Medical Society."

Another important change recommended by the committee was the dropping of the pathological section.

A committee was appointed to draw up resolutions of regret at the illness of Dr. P. H. Millard.

Dr. Knox Bacon presented an interesting case of

MOVABLE BODIES IN THE JOINTS.

Dr. Robert Wheaton reported a cure of

CHYLOUS ASCITES.

Dr. Chas. Lyman Greene then read a paper entitled

THE SERUM TEST OF WIDAL AND THE POSSIBILITY OF ITS APPLICATION WITHOUT MICROSCOPIC EXAMINATION.

The doctor briefly outlined the evolution of the test through the work of Pfeiffer, Durham, Widal and others, reported a series of cases and called attention to the fact that in cases where the reaction was marked one might by using his method very generally determine the presence or absence of reaction with the naked eye. The test he declared to be essentially pathognomonic of typhoid, and more valuable than all other signs together. He dwelt upon the simplicity of the required technique and the ready adaptability of the test to Board of Health work. He closed with a demonstration of his method of applying the test.

A motion was carried to devote the whole time of the December meeting of the Society to the adoption of the new Constitution and By-Laws, and the selection of a permanent meeting place.

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY.

The Southwestern Minnesota Medical Society met at the office of Dr. Weiser, in Windom., January 14, 1896.

The meeting was called to order by the President, Dr. Clark.

The following members were present: Drs. LeRoy Brown, Heron Lake; C. O. Cooley, Madelia; A. H. Clark, G. R. Curran and W. H. Gaugh, Worthington; C. A. Greene and F. R. Weiser, Windom; J. H. James, Mankato; H. Morrell, Slayton; H. Neill, Sibley, Ia.; W. H. Rowe, St. James; N. E. Spalding, Luverne; M. Sullivan, Adrian.

Mankato was chosen as the next place of meeting. The date was set for June 15, so as to immediately precede the State Medical Society meeting.

A motion was carried that the name of any candidate for membership in this Society shall first be presented to the Membership Committee at a meeting preceding the one at which final action is taken.

The President reported the result of the prosecution of the so-called "Cancer Doctors."

A committee was chosen to draw up resolutions expressing the views of the Society in regard to violations of the Medical Practice Act, with the purpose of communicating with a similar committee which has been chosen by the State Medical Society.

A motion to appoint a committee to draw up a resolution protesting against the failure of the Governor to reappoint Dr. C. N. Hewitt a member of the State Board of Health was carried.

The Chair appointed Dr. SPALDING a committee of one on resolutions, who reported the following resolution which was carried unanimously:

WHEREAS: We learn with regret that the Governor of the State of Minnesota has failed to reappoint Dr. C. N. Hewitt a member of the State Board of Health, and

WHEREAS: We, the members of the Southwestern Minnesota Medical Society, knowing and recognizing his marked ability and the high appreciation both at home and abroad of his successful work and recognizing that the execution of the duties incident to said Board can best be secured by the reappointment of Dr. C. N. Hewitt, now be it

Resolved: That the Southwestern Minnesota Medical Society earnestly request and urge the reappointment of Dr. C. N. Hewitt as a member of said State Board of Health.

The following papers were presented and profitably discussed by the members present:

AN HISTORICAL REVIEW OF THE WORK OF THE SOCIETY

by the President.

THE INJECTION TREATMENT OF HÆMORRHOIDS

by Dr. WEISER.

REMARKS ON THE USE OF COQUILLE GLASSES

by Dr. JAMES.

See page 107.

An interesting and valuable paper on typhoid fever was read and excited considerable discussion.

BOOK NOTICES.

AUTOSCOPY OF THE LARYNX AND THE TRACHEA. By Alfred Kirstein, M. D., Translated by Max Thomer, A. M., M. D. Illustrated. Phila: The F. A. Davis Co. 1897. [Price, 75 cts.]

Autoscopy of the larynx is the direct inspection of this organ without the aid of mirrors. It is a feat somewhat difficult of accomplishment but nevertheless one that may be performed by the instructed, as will be found from a perusal of this book, which tells how the thing is done and gives a description with illustrations of the instruments employed.

INTERNATIONAL CLINICS. Edited by Judson Daland, M. D., Instructor in Clinical Medicine and Lecturer on Physical Diagnosis in the University of Pennsylvania; etc., J. Mitchell Bruce, M. D., F. R. C. P., and David W. Finlay, M. D., F. R. C. P. Vol. III. Sixth Series. 1896. Phila: J. B. Lippincott Company. 1896.

The lectures in this volume of the series cover a wide range of subjects, both medical and surgical, and like those of the preceding volumes are by well known men. To read them is to carry the practitioner back to his student days and seat him once more in the clinic, the distant view of the patient being all that is lacking to make the picture complete.

THE DISEASES OF INFANCY AND CHILDHOOD. By L. Emmett Holt, A. M., M. D., Professor of Diseases of Children in the New York Polyclinic; etc. Illustrated. New York: D. Appleton & Company. 1897.

Dr. Holt has become so well and favorably known to the medical profession as a writer upon diseases of children, that this complete treatise on the subject from his pen will be received with pleasure. Although a large volume it is for the most part a record of the writer's individual opinions and experience and not a mere compilation of the views of others.

The proper method of feeding infants is the most important of the subjects treated of by the writer on pædiatrics. Holt is in agreement with the views of Rotch in this particular and advises the use of modified cow's milk in cases where artificial feeding must be resorted to. His directions on this point have the great advantage over those of Rotch that they are short and easy to comprehend, while to make out a practical guide from Rotch's chapters on the subject is a problem that can be solved only after much study.

It would be impossible to give the author's views on the numerous conditions and diseases discussed in this book, but it may be noted in passing that he does not endorse the view that sterilized milk is a cause of scurvy, that he considers appendicitis a surgical disease, and that he has found intestinal worms to be a rare affection, occurring in but 79 out of 10,000 cases treated in a dispensary practice.

MISCELLANY.

BOOKS AND PAMPHLETS RECEIVED.

A Practical Treatise of Diseases of the Skin. For the Use of Students and Practitioners. By J. Nevins Hyde, A. M., M. D., Professor of Dermatology and Venereal Diseases, Rush Medical College, Chicago, and Frank H. Montgomery, M. D., Lecturer on Dermatology and Venereal Diseases, Rush Medical College, Chicago; New (fourth) edition. Illustrated. Cloth, $5.25; leather, $6.25. Lea Brothers & Co. Philadelphia and New York: 1897.

Bulletin of the Harvard Medical Alumni Association. No. 10.

The Cyclone Neurosis and Psychosis. By Dr. Ludow Bremer, of St. Louis.

The Mineral Waters of Mt. Clemens, Michigan, U. S. A. By Dr. Richard Leuschner.

The Treatment of Carcinoma Mammæ. By Carl Beck, M. D. Reprint.

Zur Therapie insbesondere dem Werth der Frühoperation bie Entzündung des Processus vermiformis. Von Dr. Carl Beck. Sonderabdruck.

Pyothorax. By Carl Beck, M. D. Reprint.

A Brief Note upon a Perfected Series of Test-Words Intended for the Determination and Estimation of the Power of Accommodation. By Charles A. Oliver, M. D. Reprint.

The Therapeutic Value of Hydrobromate of Scopolamine in Plastic Iritis. By Charles A. Oliver, M. D. Reprint.

Review of Some Points of Surgical Interest in Abdominal Cases. By E. J. A. Rogers, M. D., of Denver, Colorado.

A Review of Some Interesting Points in Surgery Observed During the Six Months Ending June 1, 1895. By E. J. A. Rogers, M. D. Reprint.

NOTES.

GLYCO-THYMOLINE.

With the rapid increase of nose and throat diseases among the populations of our great cities, the treatment of these affections has risen to the rank of an important specialty. With this development has come the multiplication of means, in the way of both appliances and remedies employed in this field. It is inevitable that amid the mass of these agencies there should be few of preëminent value. Most of them are born and "have their little day and cease to be."

It is a pleasure to find an exception to this common fate in the success which Glyco-Thymoline (Kress) is meeting with. Useful as a mouth and nose wash, on the score of its alkaline, antisepic and deodorant properties, it has also a decidedly alterative influence upon the mucous membranes.

In the nose and throat hospitals and dispensaries it is in very extensive use and has given the most uniform satisfaction. It is susceptible of dilution in the proportion of one part to three parts of warm water. Some stress should be laid upon the temperature of the water—a point too apt to be overlooked in the use of cleansing fluids for the nose. It is a good menstruum for more active medicaments; an excellent fluid for use with the tooth brush; and of particular utility as an atonized wash for the mouth and throat in cases of acute disease.

The manufacturers of Glyco-Thymoline have enhanced its usefulness by placing upon the market a little appliance for its administration known as the Bermingham Nasal Douche. It is modeled after the form of an invalid feeding cup, save that the supply-aperture is narrowed to an opening easily closed by the finger, by means of which the outflow can be easily regulated. The following instructions in regard to its use are simple and attest by their simplicity its utility:

"It is to be used in the following manner: Having warmed the cleansing solution by placing an ounce vial containing it standing in a tumblerful of hot water for a few minutes, fill a douche, which has a capacity of about seven drachms, generally enough for a thorough cleansing. The funnel should now be closed with the tip of the index finger and the nozzle inserted into the nostril so that it closes the latter completely. Throw the head slightly backward, raise the finger closing the funnel, and allow the solution to enter the nostril and flow through it to the throat. When the solution is felt in the throat the flow may be checked by simply closing the funnel with the finger tip. The solution should be kept in contact with the parts for two minutes before clearing the nose and throat, and it should be used in each nostril. Breathe through the mouth while using douche."

The most perfect cleanliness is secured by this method of douching the nose. The little instrument affords a very convenient means of household treatment—the want of which has stood in the way of the persevering pursuance of home measures of cure. Too many a failure in recovery is chargeable to a want of persistence in personal treatment—a day by day practice which is essential to permanent relief.

THE CURE OF THE MORPHIA HABIT.

By Thomas Osmond Summers, M. A., M. D.,

F. C. Sc., London, Etc.

Opium takes the first place in both pathologic and sociologic retogade metamorphosis. How can we meet it? It is the question of the hour so far as the restless methods of life prevail in the eventful century now drawing to a close. No one, who has not been brought in close personal and professional relationship with those who suffer the horrible agonies of an habitué, deprived of his nerve-need, which clamors for sustenance, could for a moment imagine the awful condition of such a patient. No substitute relieves him—opium he must have—opium he will have. Unaided and alone he cannot abandon its use, and there is no other pathologic condition which approaches the terrible thraldom of this slavery. Now, what are the causes of such strange conditions? They are these: When once the cell has been covered with the opium film, which it requires but a short time to develop, there is no action, digestive, nutritive, assimilative, in any part of the body until the supply of this material to the adventitious envelop is furnished in sufficient quantity to keep it fully expanded. Withdraw this agent, which has originally developed the necessity for its continuance and made its presence in the organism a constant necessity, and what will be the effect? The scene would require the pencil of a Parrhasius, or the awful imagery of a Milton or a Dante. I declare it, as a man of science, to be an absolute impossibility for cases of this character, however their eager yearning, craving for freedom from this galling yoke, either by force of will or by the use of soothing agents similar in effect, to unwind the Anaconda coils of this serpent of the East. What then? It has been demonstrated that it is possible to remove this filmy cellular wall directly, so that if the drug should be suddenly removed there would not be that crenated contraction which always occurs after withdrawal and which causes the arrest of every organ and tissue in the body. A series of very carefully conducted experiments under the control of the greatest American physiologists has demonstrated that if a saturated solution of the phosphates combined with a large proportion of nitrogen was brought to bear on the nerve cell, or, to speak more accurately, the trophic centres, there was no crenation; on the contrary the cell wall puffed outward, there was no abnormal contraction upon the cell contents and a sudden influx of osmotic material which under the stimulus of the drug had been arrested. The administration of the saturated, or rather the supersaturated solution of the phosphates with nitrogen in controlling proportions will simply restore all of the perverted, abnormally surrounded or invested cells of every structure to their normal, natural relationship in the body; and with neither pain nor confinement, neither danger nor distress, the slave of pathology may become the freeman of physiology. I consider this the grandest triumph of the age.

The practical administration of these salts in the cure of the morphia habit must be conducted with great care.

In the first place, the character of the preparation used, representing, as I have said, the strongest and most concentrated forms, the nitrates and phosphates together can only be reached by very delicate and complicate chemical apparatus requiring machinery of strong pressure. The only concentrated form which is directly osmotic is known to pharmacy as Melachol, the concentrated properties of which led me to believe that in it we had found the perfect therapeutic agent for this disturbed physiologic condition, and after its use in over 200 cases, I can honestly and with great gratification report that only in three or four cases have I failed to withdraw the drug (even accustomed to thirty grains a day) entirely within three weeks. I have had but six relapses and these were deliberate. I have in four cases been compelled to use morphia for traumatic injuries four months after patient had recovered from the habit, but along with the Melachol there was no return or desire to return to its habitual use, for those who are once gloriously free from its chains generally shun it as a viper.

In administering Melachol for the cure of the morphia habit, a large dose should be administered at the very outset. This, as anyone thinking for a moment would see, is for the purpose of putting each cell under the intense stimulus of a contrary or unusual influence. This breaks up at once the habitude. It is my rule, *first*, on rising in the morning, to give two ounces of Melachol largely diluted with water. After the toilet is made and just before breakfast, which should be very light, I give 1-100 grain of arsenic in cases where "the lungs are weak," to use a popular expression, but to speak scientifically, to expand the air cells which are sometimes collapsed, by a full dose of Melachol, if not supported.

The other adjuvants (and what remedy for any pathologic condition is there that does not in the numberless permutations and combinations of this complex organism demand reinforcement from other sources than its own even well nigh specific effect?) may be summed up under the general head of tonics, and it is usually better to prescribe the simplest. The following is the prescribed line of treatment in most cases to to be modified *pro re nata:*

On rising in the morning, one-half tumbler of water and Melachol, ℥. If difficulty of breathing: Fowler's solution, ʒ ss.

S. Take five drops immediately after eating, three times a day, in a wineglass of water.

Coffee and rare beef at breakfast. No pork should ever be used.

If addicted to the use of tobacco, a cigar after each meal. Every three hours through the day take a teaspoonful of Melachol.

Drink seltzer and milk at intervals through the day. Move out in open air, if atmosphere is favorable. At night, just before retiring, take a hot hip-bath. Follow this with a strong whisky toddy, or, if preferable, a strong cup of tea, for while these may seem antagonistic in effect, their ultimate effect I have found to be pretty much the same in these cases.

The next morning not so much Melachol should be used, say, only ℥ before breakfast, and afterwards through the day at intervals of three or four hours, according to the restlessness which appears.

The arsenic—Fowler's solution—may be kept up several weeks with benefit. During this time the patient should only take the quantity of morphia allowed by his physician, which in most of my cases generally amounts to almost nothing. Pleasant surroundings, interesting books, intense pursuits all act powerfully to support a patient under this trying ordeal. I say nothing of his own will-power, for the reason that the patient should give himself entirely up to his physician, whose will should take the place of that which is temporarily suffused. Nothing further than this is needed in the most aggravated cases but the judicious handling of the arising symptoms by the physician and his kindly normal support, which goes so far toward the favorable ultimate issue of all neurological cases. I have seen some of the most inveterate habitués cured completely within three weeks.

AN IMPORTANT ANNOUNCEMENT.

We are sure that every physician who receives the LANCET, has read with much interest the announcement made in these columns by Miss Baker, who proposes to establish a private school for the care and training of a class of children so few people, even parents, are capable of giving the best opportunity of development.

We are glad to be able to inform our readers that Miss Baker, by temperament and by special training and experience, is admirably qualified for such work; and we are confident she will receive the hearty coöperation of every physician in the Northwest.

Miss Baker spent four years as a teacher in the Iowa Institute for the Feeble-Minded, and for twelve years she has been the principal teacher at our state institution, at Fairbault, for this class of unfortunates. She has not only superintended and directed the work at Faribault, but she has always been one of the teaching staff; and in this work she has dealt with many hundreds of individual children, of all types and capacities.

With a love and enthusiasm for this important work, she cannot fail to meet the financial success necessary in the undertaking, if the medical profession will show the interest in her work which her qualifications merit.

She is led to undertake this work by the demand which has made itself apparent to her through letters of inquiry addressed to the state institution by physicians and parents.

Further announcements will be made as to her plans at an early day, and in the meantime she invites correspondence from any persons interested. She may be addressed as follows:—

Miss Laura Baker, Faribault, Minn.

Dr. R. I. Law, Galesburg, Ill.: I use "Sander & Sons' Eucalyptol" as an antiseptic. It fulfills all demands we make upon it as such.

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BELLEVUE HOSPITAL MEDICAL COLLEGE.
CITY OF NEW YORK.
SESSIONS OF 1897-98.

The REGULAR SESSION begins on Monday, September 27, 1897, and continues for twenty-six weeks. Attendance on four regular courses of lectures is required for graduation. Students who have attended one full regular course of lectures at another accredited Medical college are admitted as second-year students without examination. Students are admitted to advanced standing for the second, third or fourth years, either on approved credentials from other accredited Medical Colleges or after examination on the subjects embraced in the curriculum of this College.

Graduates of other accredited Medical Colleges are admitted as fourth-year students, but must pass examinations in normal and pathological histology and pathological anatomy.

The SPRING SESSION consists of daily recitations, clinical lectures and practical exercises. This session begins March 28, 1898, and continues for twelve weeks.

The annual circular for 1897-8, giving full details of the curriculum for the four years, requirements for graduation and other information, will be published in June. 1897. Address AUSTIN FLINT, Secretary, Bellevue Hospital Medical College, foot of East 26th Street, New York City.

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ORIGINAL ARTICLES.

SOME EXPERIMENTS DEMONSTRATING THE USE OF BUREAU TUBERCULIN AS A DIAGNOSTIC AGENT IN PULMONARY TUBERCULOSIS.*

By George Douglas Head, B. S., M. D.

Instructor in Pathology, University of Minnesota.

When Robert Koch announced to the world his discovery of tuberculin, he declared it a preparation of diagnostic as well as of curative value. In the enthusiasm of the hour over the probable curative effect of the new remedy, its use as a diagnostic agent was lost sight of; and it has only been of late that any attention has been given to this glycerine extract of Koch as an aid in diagnostic medicine. Scattering statements are seen here and there in one's periodical reading, setting forth the use of tuberculin as a diagnostic agent. But careful, systematic observations, seeking to establish the real value of this preparation, are wanting.

Some months ago in this Society, this question was asked by a young medical man of this city: "If tuberculin can establish the presence of the tubercle bacillus in cattle and other lower animasl, why can it not be used for a like purpose in man?" As a similar query had many times arisen in my mind, I determined to start a series of experiments, seeking to prove or disprove the use of tuberculin as a diagnostic agent in human tuberculosis.

In my work I have used the Bureau tuberculin, which is in strength a 10 per cent. solution of Koch's preparation. My reasons for doing this were, first, that this is the preparation used in the cattle tests; second, that it is cheaper; third, that it is easily and quickly secured; and fourth that with a dilute solution a more accurate dose could be secured.

Tuberculin is a 50 per cent. glycerine extract of the living culture of the tubercle bacillus. It is prepared by growing tubercle bacilli in a 1 per cent. beef extract solution of meat infusion, in flat bottomed flasks, at a temperature of 38 degrees C, for six or eight weeks. The contents of a number of these flasks are then put into a dish, and evaporated to one-tenth the original volume. This heat kills all the bacilli. The liquid is then passed through a porcelain filter; and, finally, glycerine is added to make a 40-50 per cent. solution, and prevent decomposition.

The apparatus used in my experiments was a hypodermic syringe, a pipette of one cubic centimeter contents, graduated to one-hundredths, and the tuberculin.

As I had no knowledge of any observers having experimented with Bureau tuberculin as a diagnostic agent, I thus formulated my work:

First, to take a series of cases of pulmonary tuberculosis, in which I could demonstrate the tubercle bacilli in the disease with which the patient was suffering. I would then inject these patients with gradually ascending doses of tuberculin until I had secured an amount at which some definite symptoms were manifested. Having secured such a dose, I should then inject healthy individuals with the same quantity of tuberculin to ascertain whether similar symptoms would follow such injections. If I could succeed in securing definite results from such observations, I would then proceed to inject patients suffering from diseases other than tuberculosis, such as typhoid fever, pneumonia, etc., and ascertain whether the tuberculin would cause a similiar set of symptoms in such patients. Having done this, if I should find a dose of tuberculin which given subcutaneously would cause a rise of temperature, or other symptoms of a definite character in tuberculous individuals, and which would not react on healthy persons, I would have a means of making a diagnosis not now recognized. If, furthermore, I should find no such reaction manifested in patients infected with other diseases simulating tuberculosis, I should then have a method of differential diagnosis of no mean importance.

The work which I shall detail tonight is in answer to the first proposition: Is there a dose of tuberculin, which, given to a healthy individual, will cause no rise in temperature, or other systemic or toxic symptoms, but which injected into a patient with tuberculosis, will cause characteristic manifestations of diagnostic value.

In all my injections, I proceeded as follows: The tuberculin was carefully measured in the pipette, then allowed to run into a sterilized dish, the pipette washed out with sterilized water, which was likewise run into the dish. The syringe was filled with the solution thus formed, and injected in the interscapular region of the back.

As I had no previous observer's work to follow, my first set of experiments was made to establish a dose of Bureau tuberculin which would cause a reaction in a patient known to be tuberculous.

EXPERIMENT 1. SERIES 1.

On June 29 I injected C. Guanyo, a patient at the City Hospital, with .10 c. c. of Bureau tuberculin. His sputum showed large numbers of tubercle bacilli and pus cells. The temperature was taken every two hours during the afternoon and night, and the condition of the patient observed. But, as the chart shows, there were no unusual manifestations, nor any reaction of temperature.

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* Read before the Hennepin County Medical Society, February 3, 1897.

EXPERIMENT II. SERIES I.

July 17, the patient was Chas. Olson. His sputum showed large numbers of bacilli. The amount injected was .15 c. c. of Bureau tuberculin. The patient complained of no ill effects, nor was there an unusual rise in temperature, as will be seen by the chart.

EXPERIMENT III. SERIES I.

On July 18, the day following experiment II., I reinjected the same patient, Chas. Olson, with .20 c. c. of tuberculin with an unusual rise in temperature of more than two degrees, as the chart shows. But, thinking that some of the tuberculin of the preceding injection might have remained to act in conjunction with that injected last, I decided to repeat the experiment after waiting a few days.

EXPERIMENT IV. SERIES I.

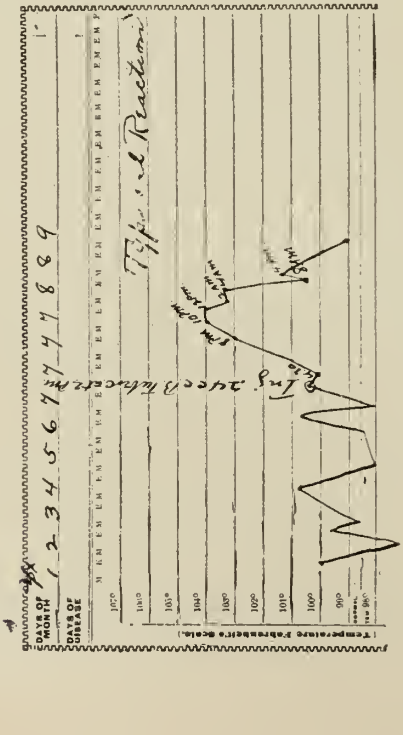
On July 21, Chas. Olson was again injected with .22 c. c. of tuberculin with no rise in temperature nor unusual symptoms.

Knowing that a proper dose had not yet been reached, on July 21, I made

EXPERIMENT V. SERIES I.

A young woman, whose sputum showed large numbers of bacilli, was injected with .22 c. c. of tuberculin, but through a mistake in the direction to the nurse, no temperature was taken.

The first patient in whom a definite reaction was secured was in



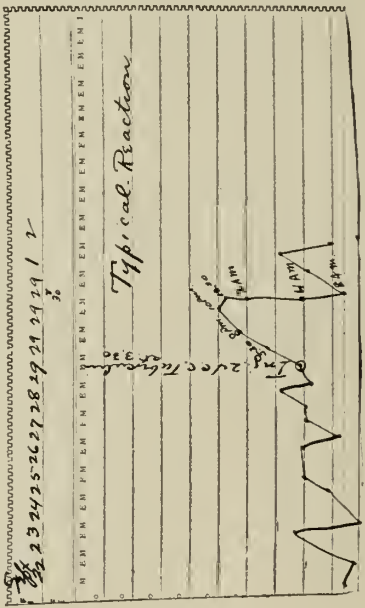
EXPERIMENT VI. SERIES II.

EXPERIMENT VI. SERIES II.

The case is one Carlson whose sputum showed large numbers of bacilli and pus cells. On September 7 I injected him with .24 c. c. of Bureau tuberculin. As you will see by the chart, within twelve hours following a rise in temperature took place of over three degrees above the mean temperature of any number of preceding days. The patient likewise complained of headache, dizziness, fever and indefinite pains over the body.

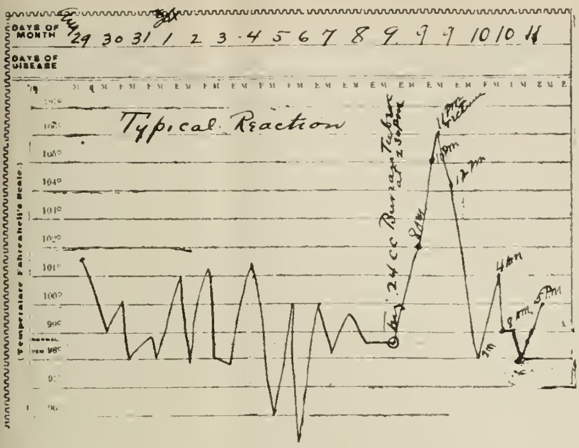
Having secured a dose of tuberculin at which a definite rise of temperature resulted when injected into one tuberculous patient, I next attempted to ascertain whether this was a constant reaction in all tuberculous patients, or whether it was but accidental, or peculiar to this one.

On September 29 I injected Mr. Dailey, a patient on the homœopathic side of the hospital with .24 c. c. of Bureau tuberculin; his sputum showing ten to thirty tubercle bacilli to the field. Here again within twelve hours of the time of the injection a rise in temperature occurred of more than three degrees above the preceding mean temperature of the disease. No other unusual symptoms were complained of.



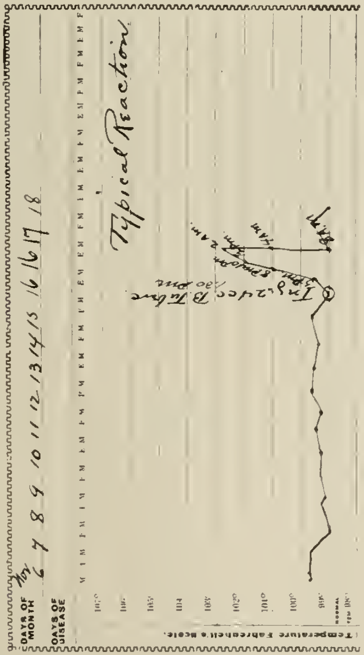
MR. DAILEY (EXPERIMENT VII. SERIES II.)

Having found a dose of Bureau tuberculin which caused a suspiciously characteristic rise in two tubercular patients, I hastened to inject John Boyle, Experiment VIII., Series II.; Andrew Nortome, Experiment IX., Series II.; Anton Ofstie, Experiment X., Series II.; Ostrum, Experiment XI., Series II. and Blow; Experiment XII., Series II.; all showing bacilli in the sputum; some only a very few, others a large number. All exhibited a



EXPERIMENT VIII. SERIES II.

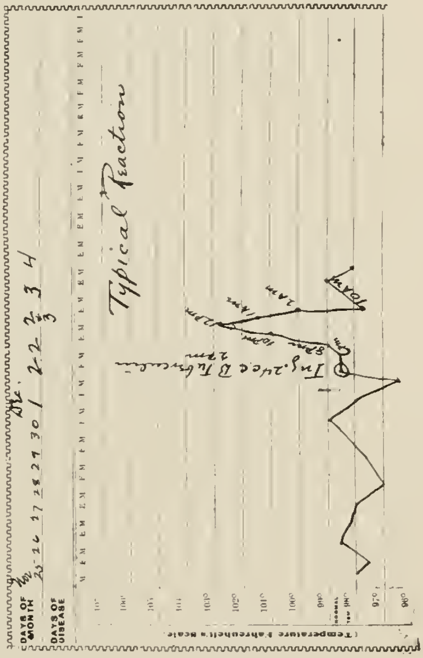
rise in temperature of more than two degrees above the mean normal temperature course of the disease within twelve hours, as well as more or less pronounced symptoms of pain in the chest, headache, increased cough and sleeplessness. Having thus established a dose of Bureau tuberculin which caused a similar and characteristic group of symptoms in persons infected with the tubercle bacillus, I next tried the effect of a like injection in supposedly healthy individuals. Of course, one is here working at some disadvantage, since we cannot know absolutely what persons are free from all tuberculous lesions. Still I think the experiments most conclusive.



EXPERIMENT IX. SERIES II.

On October 22 I injected J. Schwartzrock (Experiment I., Series III.), a supposedly healthy man, entered the City Hospital for fracture of femur, with .24 c. c. of Bureau tuberculin, the same dose which had caused the rise of more than two degrees within twelve hours in all the tuberculous patients. There was no rise of temperature, as the chart shows, within twelve hours; but at the fourteenth hour a rise of 1.4 degrees took place. No other ill symptoms were camplained of.

On October 23, I injected Harry Genseuleiter, (Experiment II., Series III.), a supposedly healthy man, entered the City Hospital for injury, with .24 c. c. of Bureau tuberculin. There was no rise of temperature of importance within twelve hours. At the thirteenth hour a mean rise of 1.4 degrees took place, as the chart shows.



EXPERIMENT X. SERIES II.

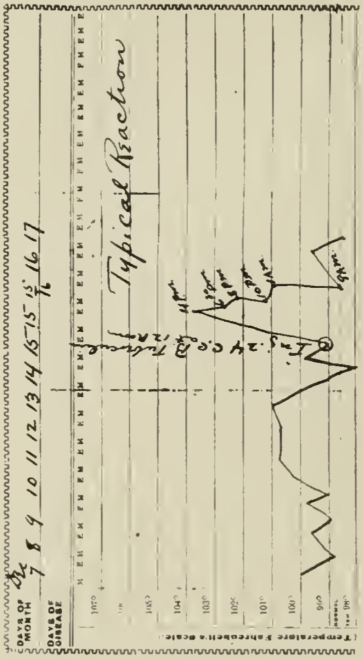
On October 27, I injected John Parsons (Experiment III., Series III.) with .24 c. c. of Bureau tuberculin. He was entered for fracture of tibia and fibula, and a supposedly healthy man. No temperature rise occurred within twelve hours, but a fall of one degree. No ill symptoms were complained of.

On November 16, I injected Ben. Johnson (Experiment IV., Series II.), entered at the City Hospital for crushed foot, a supposedly healthy man, with .24 c. c. of Bureau tuberculin. There was no rise of temperature within twelve hours, but a fall of 1.8 degrees. No ill symptoms were complained of.

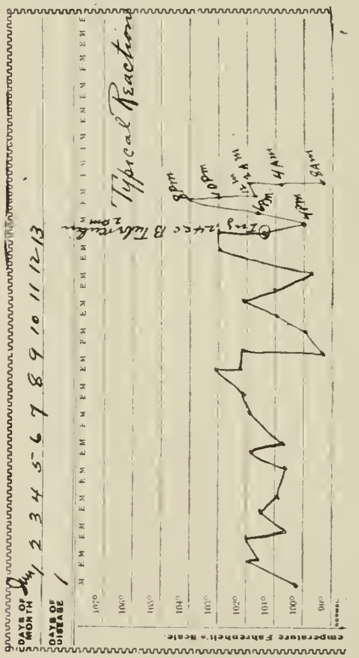
Similar results were secured in Charlie Johnson (Experiment V., Series III.), Robert Bothorn (Experiment VI., Series III.), and John Peterson

(Experiment VII., Series III.), all supposedly healthy men, and injected with .24 c. c. of Bureau tuberculin.

It thus seemed clear that .24 c. c. of Bureau tuberculin was a dose which, injected into a tuberculous patient, caused a definite and characteristic set of symptoms, which were entirely wanting in persons of healthy constitution. This would have been the case had it not been for two other experiments, which I now wish to detail:



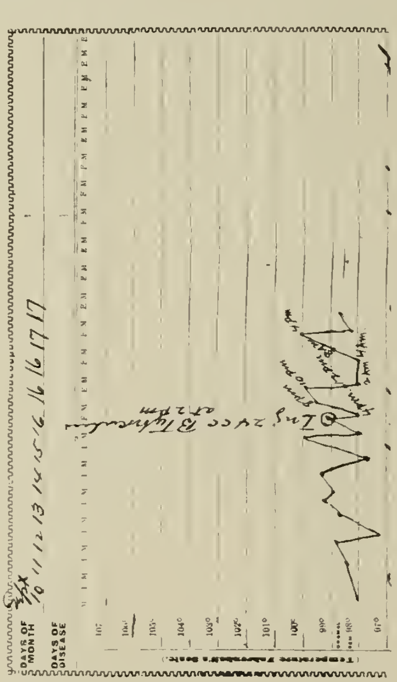
EXPERIMENT XI. SERIES II.



EXPERIMENT XII. SERIES II.

One, the case of Mike Smith (Experiment XIII., Series II.), a patient entered at the city hospital for tuberculosis of lungs and intestinal tract. Large numbers of bacilli were found in both sputum and fæces (1,000 in a field). On September 19, I injected the patient with .24 c. c. of Bureau tuberculin, with no rise in temperature within twelve hours, nor other unusual symptoms complained of. I could explain this unexpected result only on the ground of the extreme infection of the patient, the system being so overwhelmed with the toxine of the tubercle bacillus that the additional amount which I gave was not sufficient to produce a systemic disturbance. Or possibly the dose I had fixed was not sufficient for such cases of extreme infection.

On October 15 I reinjected this patient with a larger dose of tuberculin (.26 c. c.), with a characteristic reaction.



EXPERIMENT XIII. SERIES II.

The question might be asked, why not make the diagnostic dose .26 c. c. of Bureau tuberculin instead of .24 c. c., the dose previously used?

This might be done; but it is in the early stages of the disease that the tuberculin test is of diagnostic value, not in its later course when the symptoms are so plain that doubt no longer exists as to the character of the infection.

The other anomalous experiment is one made on a young man of 26 years, apparently healthy, and in whom a rigid examination reveals no tubercular lesions. He is, however, not robust, and has a tendency to contract colds in the winter time.

On October 21, I injected him (see Experiment VIII., Series III.) with .24 c. c. of Bureau tuberculin, with a rise in temperature of over four degrees within twelve hours, and all the manifestations of the tubercular cases I had previously injected with tuberculin. I can account for this only in one way, namely, that this individual is harboring a latent tubercular process which physical examination fails to disclose.

On January 10, I injected a patient, Tolofson (Experiment XII., Series II.), who had exhibited some symptoms of tubercular infection of the urinary tract, with .24 c. c. of tuberculin (B). The man was in a comatose condition at the time of the injection; had had a subnormal temperature for some days, and was expected to die at any time. The result of the injection showed no temperature reaction, while the post mortem showed the lesions of a general tuberculosis. I believe that the vital processes of the patient were at so low an ebb that a temperature reaction of sufficient intensity to make a diagnosis was impossible, and therefore exclude this case in the general deduction which will be drawn from the experiments.

I wish likewise to review two other experiments made upon individuals in whom the diagnosis of pulmonary tuberculosis was in doubt.

EXPERIMENT I. SERIES IV.

On January 4, I injected Ed. Stims,* a patient entered at the city hospital for a consolidation of the left lung; no temperature and little cough; no bacilli could be found in the sputum. The diagnosis was in doubt. Within twelve hours following the injection of .24 c. c. of Bureau tuberculin, there followed a rise in temperature of over four degrees, with headache, restlessness, limbs ache, sleeplessness and chills. If the Bureau tuberculin test is of any value, this man has pulmonary tuberculosis.

The second experiment was made upon Mrs. B., a patient entered at the city hospital for cough, and some other symptoms of pulmonary tuberculosis; but no bacilli could be found in the sputum.

On December 23, I injected her with .24 c. c. of Bureau tuberculin, and within twelve hours (see Ex. II., Series IV.) there resulted a rise of temperature of 4.3 degrees, and all the accompanying symptoms exhibited by those tubercular patients previously injected. If the Bureau tuberculin is of any value, the woman has pulmonary tuberculosis.

Both these cases are under observation and will be reported on later. I have not the slightest doubt but that bacilli will be found in the sputum of both patients in the course of time.

This concludes the list of experiments here to be reviewed. The number is not large; but care has been taken in their study, and some conclusions can be drawn from the evidence:

1st. That in a large majority of the cases of pulmonary tuberculosis, .24 c. c. of Bureau tuberculin is a sufficient dose to cause a characteristic diagnostic set of symptoms.

2d. That the chief and most important of such symptoms is a rise in temperature within twelve hours following the injection, of two or more degrees above the mean temperature rise of the preceding course of the disease.

3d. That .24 c. c. of Bureau tuberculin will not cause this set of symptoms in a great majority of, or probably in any healthy persons.

4th. That some cases far advanced in the course of the disease, when the diagnosis is easy by other methods, will not react to the .24. c. c. dose of Bureau tuberculin, and will require the injection of a larger amount.

5th. That so far as the author of this article has gone with his experiments, he believes. he is able, by the use of Bureau tuberculin, to make a diagnosis in incipient cases of pulmonary tuberculosis, where the physical signs and the examination of the sputum are without absolute diagnostic value.

The writer is of the opinion that the reason why experiments heretofore made seeking to demonstrate the diagnostic value of tuberculin have been only in part successful is because of the concentrated solution used.

13 Syndicate Block.

THE STATUS OF THE SURGERY OF THE GALL-BLADDER, GALL DUCTS AND INTESTINE, DURING THE LAST DECADE, AND THE INFLUENCE OF THE MURPHY BUTTON ON THE SAME, TOGETHER WITH 150 CASES NOT YET REPORTED IN THE LITERATURE.—A CRITICAL STUDY.

By Adolfo Luria, Ph. D., M. D.
Chicago.

The subject I propose to discuss in a somewhat lengthy and critical way is by no means a new one. It has been discussed *pro e contra* in the columns of our periodicals again and again, and this, *ab extenso*, not only in our country, but abroad just as well, till its literature has attained quite respectable dimensions. It has gained since for itself a long host of enthusiastic admirers and has brought its genial innovator to the front rank of our profession, but it has created also an avalanche of opponents which again is but a natural outcome, shared by all successful innovations.

Neither novelty, therefore, is it nor because its subject is everlastingly interesting to the surgeon, that has prompted me to bring the matter up again for consideration, certainly not; my aim is a broader one, namely: to establish on the basis of the practical results which the clinical records show, that the profession has obtained by the use of the anastomosis button a superiority over all other devices heretofore employed in intestinal surgery, by pointing out in all fairness its merits, as well as the disadvantages it possesses as compared with the other methods.

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* Since the reading of this paper tubercle bacilli have been found in Stim's sputum.

The Murphy button is not an ideal device for an ideal method, it is true, and Murphy himself never claimed it to be such, but it is none the less equally true that its advent has marked a new corner stone in the field of advancement of intestinal surgery, as it has revolutionized the old methods of former days.

In order to better elucidate how such a revolution was brought on, permit me, before entering into the discussion of the subject, to sketch to you, in some rough outlines, the status of intestinal surgery prior to the introduction of the Murphy button.

It is not my intention to enter into antiquities, nor even into the mediæval or modern history of intestinal surgery. I will even exclude all that was done in this field after the advent of Listerism from 1872 till 1880; suffice it to say that the work done in this direction was scarce enough, so I will only confine myself to giving you in outline a retrospection of the clinical achievements obtained by the different methods under equally favorable circumstances.

Up to 1880, in spite of the fact that Richer and Bichât[1] had paved the way for Lembert[2] to establish his principle of uniting serosa to serosa, and in spite of Denan's[3] classical attempt to effect end-to-end union without suture by introducing into each end of the bowel a ring of silver or zinc, intestinal surgery received but a step-motherly attention at the hands of the most eminent surgeons of those days, although, strange as it is to say, in the surgery of the gall ducts, for instance, nature herself, the greatest of all healers, in her efforts of cure, has pointed out to them the way, by establishing a pathological fistula between the gall bladder and the intestines.

To the late lamented von Nussbaum, of Munich, however, belongs the credit of having taken up that hint. He in 1880 suggested to the profession to establish an artificial connection between the gall bladder and intestine, through which the gall should have again an outlet into the intestinal tract, when its escape through its natural channel was no more possible.

The seed thrown out by v. Nussbaum fell upon good soil, and so we see already in the following year, 1881, von Winiwarter[4] acquire the honor of being the first in the field who worked out a feasible plan of operation, and put it also into practical use, but so great were the impediments to overcome, and so taxing the skill and energy of the operator as well as the endurance of the patient, that it took six and one-half years after the publication of v. Winiwarter's case ere another surgeon was prepared to follow the former's footsteps. Monastyrski[5] was the first to follow him; he operated on the fourth of May, 1887, but reported the same eleven months later. Kappeler[6] was the second to perform the operation for the establishment of a gall bladder and intestinal fistula in the human subject. He was followed, third, by Socin, on November 19, 1887; fourth by Fritzsche, on April 24, 1888; fifth and sixth by Badenheuer with two cases, April 24, 1888; seventh by Chayo Robson, on March 2, 1889; eighth by Ferrier, on August 13, 1889; ninth by Courvoisier, on March 28, 1890; tenth by Korte, on September 29, 1890; eleventh by Lindner, on January 1, 1891; twelfth by Sprengel, on January 16, 1891; thirteenth by Korte, on May 21, 1891; fourteenth by Chavasse, on October 24, 1891; fifteenth by Lindner, on November 2, 1891; sixteenth by Helferich, on November 16, 1891; seventeenth by Murphy, on June 11, 1892.

Thus it will be readily seen that from the time Winiwarter operated on his case to February 1, 1893, covering a period of over twelve years, twenty different operators tried their utmost energy and skill to find an ideal means to establish a gall bladder and intestinal fistula in the human subject, and this on twenty-five cases. Out of this number four died as a direct result of the operation, to wit: both cases of Badenheuer,[7] Fritsche's[8] case and the case of Czerny.[9] Four cases died at an interval of from ten hours to thirty-seven days, namely, Fränkel's[10] case, which died ten hours later, Korte's[11] first case, which succumbed in collapse after seven days, Czerny's second case, which was carried off after two weeks by hemorrhage, and finally Ross'[12] case, which survived the operation thirty-seven days with continuous hemorrhage. Three died as a result of the malignant disease they were suffering from, namely, Monastyrski's patient, who died four months later, Ferrier's patient one year later, and finally Kappeler's patient who even survived the operation fifteen months, making a total of eleven cases, while the result of Chavasse's[13] case is not recorded, and thirteen cases survived. Of these:

Ten operations were cholecystenterostomies, with 5 recoveries; 6 cholecystoduodenostomies, with 4 recoveries; 4 cholecystocolostomies, with 2 recoveries; 3 cholecystojejunostomies, with 1 recovery and 1 (?); 1 cholecystogastrostomy, with 1 recovery; 1 cholecystoileostomy, with 1 recovery temporarily; making 25 cases of cholecystostomies, with 13 recoveries.

According to the method used, there were:

Eighteen operations with the suture method with 14 recoveries; 4 operations with elastic ligature with no recovery; 1 operation with Wölfler's suture, with 1 temporary recovery; 1 operation with suture and drainage tube, with 1 temporary recovery; 1 operation with bone plates, with unknown result.

Thus it will be seen that the devices employed were threefold, to-wit:

(a) By suture,

(b) By suture with mechanical aid, and finally

(c) By mechanical means.

The results indeed so far as obtained by the above three methods were far from encouraging, as out of twenty-five cases we have to register eleven deaths, or a mortality rate of forty-four per cent. It is true, that of all operations, where approximations are to be made by means of the suture cholecystenterostomy is the most tedious and tiresome one. Gaston,[14] Harley, Colzi,[15] De Paige, who with industry and cheerfulness pursued the solution of this question through experimental work, foretold the practical unsatisfactory results of the same. And their verdict was confirmed later on by the pioneers of this operation. We have only to remember that it took v. Winiwarter sixteen months and six operations on the same patient ere he succeeded in his end, and it sounds indeed like a romantic tale to learn of the difficulties those masters had to contend with, so that really we are at a loss to decide whether we shall admire more the skill and perseverance of the surgeon or the endurance of the patient who had to undergo such a difficult performance.

This is the status of the surgery prior to the advent of the Murphy button, as far as operations on the bile ducts for the establishment of a fistula between the gall bladder and the intestine are concerned, but outside of the same there were furthermore performed from 1888 to the latter part of 1892 the following operations:

(a) By suture.

Forty-nine gastroenterostomies, with 30 recoveries, 15 fatalities and 4 unknown; 2 pylorectomies and gastroent., with no recovery and 2 fatalities, 100 per cent.; 1 pylorectom. and cholecyst., with ? recovery and ? fatality; 10 resections of the stomach, with 5 recoveries and 5 fatalities, 50 per cent.; 10 pylorectomies, with 6 recoveries and 4 fatalities, 40 per cent.

In all 72 operations with 41 recoveries, 26 fatalities and 5 unknown results.

The operations on the intestine amount to 96 with 1 unknown case, and 66 recoveries and 29 fatalities, or a mortality rate of 32.08 per cent., which are reported as follows:

Twenty-two entero-enterostomies, with 10 recoveries and 12 deaths, 54.5 per cent.; 1 entero-enterostomy and enterorraphy with recovery; 17 enterectomies, with 12 recoveries and 5 deaths, 29.4 per cent.; 3 enterorraphies, with 2 recoveries and 1 death, 33.3 per cent.; 2 enterocolostomies, with 1 recovery and 1 death; 1 enterosigmoidostomy, with 1 recovery; 6 colocolostomies, with 4 recoveries and 2 deaths, 33.3 per cent.; 1 colosigmoidostomy, with 1 recovery; 6 colectomies, with 4 recoveries and 2 deaths, 33.3 per cent.; 5 steocolostomies, with 3 recoveries and 2 deaths. 40 per cent.; 3 ileoilostamies, with 2 recoveries and 1 death, 33.3 per cent.; 14 resections of the ileum, with 11 recoveries and 3 deaths, 21.4 per cent.; 1 resection of the ileum and cæcum, with 1 death, 100 per cent.; 1 resection of the jejunum, with 1 recovery; 4 resections of the small intestine, with 4 recoveries; 2 resections of the cæcum, with 2 recoveries; 6 not classified, with 6 recoveries; 1 jejunojejunostomy, with 1 temporary recovery.

This brings up the total sum of all cases operated upon by means of the suture method to 193, with 120 recoveries and 66 fatalities and 7 cases of which the result is unknown.

Out of the 169 cases which gave 107 recoveries and 55 deaths and 7 unknown results there were operated:

Ninety-three cases by the method of simple suture, with 60 recoveries, 3 unknown and 30 deaths, or a mortality rate of 32.25 per cent.; 8 cases by Wölfler's suture, with 5 recoveries, 2 deaths and 1 unknown, or a mortality rate of 25 per cent.; 2 cases by Barker's suture, with no recovery and 2 deaths, or a mortality rate of 100 per cent.; 12 cases by Lembert's suture, with 10 recoveries and 2 deaths, or a mortality rate of 16.6 per cent.; 2 cases by Czerny's suture, with 2 recoveries; 9 cases by Czerny-Lembert's suture, with 4 recoveries and 5 deaths, or a mortality rate of 55.5 per cent.; 3 cases by Maydl's suture, with 2 recoveries and 1 death, or a mortality rate of 33.3 per cent.; 1 case by Courvoisier's suture, with unknown result; case by Ferrier's suture, with recovery and death; 3 cases by Brenner's suture, with 2 recoveries and 1 death, or a mortality rate of 33.3 per cent.; 4 cases by Hacker's suture, with 2 recoveries, 1 death and 1 unknown, or a mortality rate of 33.3 per cent.; 4 cases by Gussenbauer's suture, with 4 recoveries; 3 cases by Gely's suture, with 1 recovery and 2 deaths, or a mortality rate of 66.6 per cent.; 1 case by Maunsell's suture, with 1 recovery; 1 case by Abbé's suture, with 1 recovery, but patient died 4 months later; 1 case by suture and continuous catgut, which ended fatally; 1 case by suture and rubber tube with recovery.

With reference to the position we find recorded:

Eighty-one side positions, with 49 recoveries and 27 deaths, or a mortality rate of 33.3 per cent., and 5 unknown; 5 end to side positions, with 3 recoveries and 2 fatalities, or a mortality rate of 40 per cent.; 40 end positions, with 30 recoveries and 10 fatalities, or a mortality rate of 25 per cent. by mechanical means.

According to the tabulation, we have in all 89 cases, with 62 recoveries, 1 unknown result and 26 deaths, or a mortality rate of 29.1 per cent., as follows:

Sixty-three gastroenterostomies, with 44 recoveries, 1 unknown and 18 fatalities, or a mortality rate of 28.57 per cent.; 1 gastroenterostomy implantation with recovery; 1 pylorectomy and gastroenterostomy, with recovery.

On the intestine there were performed:

Two enterectomies, with 2 recoveries; 6 enteroenterostomies, with 4 recoveries and 2 deaths, or a mortality rate of 33.3 per cent.; 1 enterocolostomy, with recovery; 1 enterorrhaphy, with recovery; 1 colocolostomy, with recovery; 6 ileocolostomies, with 3 recoveries and 3 deaths, or a mortality rate of 50 per cent.; 3 ileoileostomies, with 1 recovery and 2 deaths, or a mortality rate of 66.6 per cent.; 1 jejunoileostomy, with recovery; 1 ileosigmoidostomy, with recovery; 1 ileocæetic implantation, with recovery.

According to the mechanical devices, there were used in 14 cases Abbé's catgut rings, with 6 recoveries and 8 deaths; 1 case of Davis catgut mats, with recovery; 1 case of Ashton's, with unknown result; 2 cases of Brockaw's segmented rubber rings, with 1 recovery and 1 death; 1 case of elastic ligature and Lembert suture, with no recovery and 1 death; cases of Robson's segmented rubber plates, with recoveries and deaths; 3 cases of Robinson's bone bobbin, with 1 recovery and 2 deaths, or a mortality rate of 66.6 per cent.; 60 cases of Senn's bone plates, with 47 recoveries, 1 unknown and 12 deaths; 1 case of Senn's plates and sutures, with recovery; 1 case of catgut mats, which terminated fatally; 1 case of rubber ring, with recovery; 1 case of rubber ring and suture, with recovery; 1 case of Paul's bone tube, with recovery; 1 case of gelatine tube, with recovery; 1 case of potato plates, with fatal termination; 3 cases of Swedish turnips, with 2 recoveries and 1 death.

With reference to the position we have:

Eighty-four cases of side approximation, with 57 recoveries, 1 unknown and 26 deaths.

Two cases of end approximation, with 2 recoveries.

Two cases of end to side approximation, with 2 recoveries.

To recapitulate we find that there were performed from 1888 to the end of 1892:

Twenty-five cholecystenterostomies, with 13 recoveries, 11 deaths and one unknown result.

Seventy-two gastroenterostomies by suture, with 41 recoveries, 26 deaths and 5 unknown.

Ninety-six enteroenterostomies by suture, with 66 recoveries, 29 deaths and 1 unknown.

Sixty-five gastroenterostomies by mechanical aids, with 46 recoveries, 18 deaths and 1 unknown.

Twenty-four enteroenterostomies by mechanical aids, with 16 recoveries and 8 deaths.

A total of 282 operations, with 182 recoveries and 92 fatal cases, or a mortality rate of 32.62 per cent., and 8 cases with unknown results.

This constitutes the whole clinical material during the decade which preceded the advent of the Murphy button; it pictures to us also the activity displayed in the surgical world to improve the methods of intestinal surgery; the tendency was to strive toward perfection, and the marvellous and ingenious devices conceived for intestinal anastomosis, as for instance Senn's bone plates, Mayo Robinson's bone bobbin, Abbé's catgutting, Paul's bone tube, the Czerny-Lembert suture and so on, were well worthy to have fulfilled the most sanguine expectations the masters placed on them, and this because in their aspirations to attain ideal results, they forgot to take into consideration the two cardinal pillars on which success rests, to wit:

(1) Time, and

(2) Simplicity of technique.

The neglect of these two simple requirements forstalled any attempt toward an ideal solution of the problem, because this oversight came to be a fruitful source of complications, which like the heads of the hydra arose at every step and towered over the surgeon. Thus the operations devised by all methods in vogue in those times were not only very difficult of performance but they required an unusual amount of time, from an hour and a half to upwards of three hours, which usually threw the patients into a state of severe shock.

Shock, then, the greatest foe of surgeons in all major operations, was one of the principal drawbacks, and this alone demanded a greater attempt on the part of surgeons to look for a more expeditious method, as they knew that every minute saved in time will not only reflect upon their credit, but, more than that, by every minute saved, the life prospect of the patient was benefited to a vast degree; but as it was, the length of time required necessitated a long exposure of the patient to the effects of the anæsthetic, so that with appalling frequency it carried off the patient beforehand.

Another factor which played a not unimportant röle was the imperfect application of the suture, resulting in the sloughing through of the bowel at the line of suture, or the catgut sutures becoming rapidly absorbed.

Furthermore, after the operation the induced invagination increased to such an extent that complete obstruction resulted therefrom, and finally the openings in Senn's bone plates and disks were either not in juxtaposition or their ends caused pressure, atrophy and perforation.

Such was the condition of affairs in 1892, when Murphy realizing how sorely the profession was in need of some simpler and better means of approximation, which at the same time would greatly decrease the amount of labor on the part of the surgeon, while it in just proportion aimed to increase the life prospects of the patient, formulated his famous question:

"What are the best means and methods of producing agglutination of surfaces and preventing subsequent contraction at the point of adhesion?"[16] And as answer to it, he donated us the Murphy button.

It is not the purpose of this paper to describe the four sizes of the button, nor its mode of application, since no less competent a person than Murphy himself has given us *ab extenso* a graphical description of the same, while abroad W. Meyer,[17] R. v. Frey,[18] Marwedel[19] and Graff,[20] as well as Kümmel,[21] Czerny,[22] Hahn[23] and Schede[24] have of late largely contributed to its literature.

I will therefore restrict myself to consider only:

a. The question where is the use of the Murphy button feasible?

b. What advantages or disadvantage have we evinced from its practical use so far?

c. How are we to overcome the objections, if any are raised against its use? And, finally,

d. In what way did the Murphy button benefit intestinal surgery, and what is its influence today?

I. Where is the use of the Murphy button feasible?

The first question is answered by Murphy himself, as he recommended to us the use of his anastomosis button in the following operations:

1. In cholecystoenterostomy and similar operative measures on the gall bladder.
2. In gastroenterostomy.
3. In pylorectomy.
4. In end to end approximation of intestine.
5. In lateral approximation.
6. In excision of the cæcum with ileocolostomy.

Following Murphy's suggestion his button has been put into practical use in all these operations, and the profession has had till today the experience of its value in 429 cases, with 311 recoveries, 4 unknown and 114 deaths, which constitutes a mortality rate of 26.57 per cent.

This constitutes the whole clinical material to date; the cases we will now proceed to analyze item by item to answer the second question:

II. What are the advantages as well as the disadvantages the anastomosis button offers?

Here, before answering the question, we shall do well to remember what Murphy claims for it. The advantages Murphy claims for his button are:

1. Time.—Reducing the duration of the operation to at least half of its former length.
2. Extreme simplicity of technique.
3. Automatic retention of position.
4. Entire independence of sutures.
5. It produces a pressure atrophy and adhesion of surfaces at the line of atrophy.
6. It insures perfect apposition and therefore obviates the danger of displacement.
7. Its applicability to the lateral as well as to the end-to-end approximation.
8. It produces a linear cicatrix, thereby insuring a minimum of contraction.
9. Edge-to-edge union of same intestinal coats.

The question now arises: Do the practical results thus far obtained justify the claims of the genial inventor? And if so how far? Let us see:

I. Time.—This is no doubt the advantage par excellence, and conceded by all authorities who have had any experience with the Murphy button, because as already aluded to, it reduces the duration of the operation from an hour to only 30 minutes and in some instances even to 16 minutes, lessening thereby greatly the danger of the exposure of the patient to the effects of the anæsthesia, and consequently also minimizing the effects of shock, but this is only true so long as the operation rests:

a. In the hands of a quick, skillful and well experienced surgeon, and

b. So long as there are normal conditions; but the moment there coëxists some abnormal or external unfavorable condition, such as thickening of the walls, or great narrowing of one or both lumina of the gut, and cases are on record where such conditions have happened (I cite only Villard,[25] Johns,[26] Griffith,[27] Lilienthal, [28] Forgu[29]). then not only is the time lengthened by the adoption of the button method, but its use is rendered even impossible.

II. Simplicity in technique. Here again this is only true as long as the operation rests in the hands of a Murphy, Fenger, Senn, Hamilton, Frank, Mikulicz, Bergmann, or other similar well experienced surgeons. Then, of course, the button method is simpler and easier to perform as compared with the tedious suture operations, which beside being tiresome, are so complicated that their mastering is a difficult task indeed to accomplish. But a certain degree of dexterity is indispensable in order to apply justly and quickly the button, which fact was clearly elucidated by the experiments on lower animals of Marwedel[19] and Chaput[30], and even on the human subject many a disaster which occurs during the course of the operation is wholly and solely to be attributed to faulty technique arising from the fact that the operator underestimated the difficulties to overcome. König[31] is therefore fully justified when he expresses his fears that such operations should be performed by inexperienced surgeons. But when the operation is performed by a surgeon who is thoroughly familiar with its technique, to the advantage of simplicity we may add that of safety. The simpler the *modus operandi* the less the manipulation and exposure, the safer is the patient from danger of infection, which next to shock, is *the* danger most dreaded by the surgeon, and the less are the patient's chances of contracting the unpleasant sequelæ of post operative paralysis and adhesions.

III. It retains its position automatically.

IV. Its independence of sutures. These are such palpable advantages that it is hardly necessary to discuss them.

V. It produces a pressure atrophy and adhesion of surface at the line of atrophy, therefore we have a greater assurance of adhesion and a less degree of liability to infiltration with no danger of extension of the pressure atrophy beyond the line of pressure.

VI. It insures perfect apposition, therefore it obviates the dangers of displacements. This advantage was clearly demonstrated by post mortem examinations. In all these the autospy showed the approximation to be perfect. The case of Abbé,[32] where a kinking of the bowel was found 48 hours later at the autopsy, and which he ascribes to the weight of the button, may rather have been due to a paralysis of the gut, as Dr. Rushmore has pointed out, for the reason that the approximated parts had gravitated to the lowest portion of the pelvis and so given rise to the sharp bend; while the other case of Morton,[33] where the button slipped back to the small intestine is rather due to the use of too small a button, than to the method itself. The same holds good for H. Mynter's case.[34]

VII. Its applicability to the lateral as well as to the end-to-end approximation. This is another advantage which has been beautifully demonstrated in a long series of cases, showing the superiority of this method over the old suture methods, as well as over other mechanical devices. It is true that resection by the end-to-end approximation does not yield as good results for malignant diseases as for non-malignant, but the same rule is applicable to all operations for malignancy; still, as we shall see in analyzing later on the cases operated upon, the practical results obtained will show how far the button method is superior to the older ones.

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(*To be continued.*)

ON THE NEWER INVESTIGATIONS OF THE HISTOLOGY OF THE NERVOUS SYSTEM.*

By Haldor Sneve, M. D.

St. Paul.

Italy gave to the world the foundation of anatomical knowledge of the nervous system through the labors of Vesalius, Eustachio, Aranzio, Fallopio and others, and as, now again, Italy by the patient genius of her Golgi and his followers, has illuminated the finer structure of the conducting and transforming system, necessitating a rewriting of our text-books on the subject, and as many present, I take it, only know the conception *neuron* by name, I have thought it of interest to briefly present some of the results of the newer investigations.

We first studied the nervous system macroscopically in the fresh state; later Reil introduced artificial hardening of the brain advancing us many strides, then the genius of B. Stilling gave the study of the nervous system the method of making thin sections in series.

Up to the middle of this century we used the dissecting knife and the defibrillation of hardened pieces of brain tissue by forceps as in the study of the nervous system. Tiedemann and Burdach enriched our means of study by working with the embryological development of the nervous system, and Waller found a new method by causing degeneration of certain tracts after section of nerves.

In 1858 Gerlach called attention to the value of stains in examination of the nerve tissues, and since then Nissl's use of the anilin colors and Weigert's hæmatoxylion have marked advances. In 1870 Gudden found that the removal of a certain organ, e. g. the eye, produced a progressive degeneration of the thereto belonging nerves and centres, opening thus another path. In 1886 Ehrlich published his method of injecting methylene blue during the life of an animal, and Retzius has cleared up many things by this method.

In 1883 Golgi, an histologist of the ancient town of Pavia, Italy, gave to the world his renowned silver method, destined to revolutionize to a great extent our ideas of the minute structure of all nervous tissue. Pieces of nervous tissue are left for weeks in a 2.5 per cent. solution of bichromate of potash gradually concentrated to 5 per cent.; the preparations are then washed and placed in a 75-10,000 solution of nitrate of silver, then in fresh solutions of the same for two or three days; when the fragments give no precipitate they are ready for the microscope. A rapid method used much by Ramony Cajal, Kölliker, Van Gehenhten, Lenhossék and others, is to use osmic acid in the bichromate solution twenty-five per cent. After six or seven days they are treated as in the preceding and are ready for the miscroscope.

Golgi later discovered another method called the slow method, in which use is made of corrosive sublimate in place of nitrate of silver. The specimens are first put in Muller's fluid, then in bichromate of potash solution three per cent. for a long time, and thereafter transferred to a one per cent. solution of corrosive sublimate where they remain for one, two or three years; a white, glistening precipitate occurs in the tissue which is changed to black by sulphides, sulphocyanides or hyposulphites.

Golgi's stains do not color all the cells and fibres, or inspection of a specimen would leave us as bewildered as we would be in a trackless forest. An important characterstic of the method is that it only stains nervous tissue.

Many workers maintained for a long time that the stains of Golgi were accidental, and consequently the revealed pictures unreliable, but the labors of a multitude of observers soon showed the incorrectness of this contention, and Belmondo has shown, too, by making extremely thin sections parallel with the cortex revealing the cell body always as a black spot, and not a black ring, that the cells and processes really are impregnated and that there is not simply a precipitate on the exterior.

Another worker in nervous histology with Golgi's method is the brilliant Spaniard, Ramony Cajal, whose fame and authority almost overshadows that of the real pioneer.

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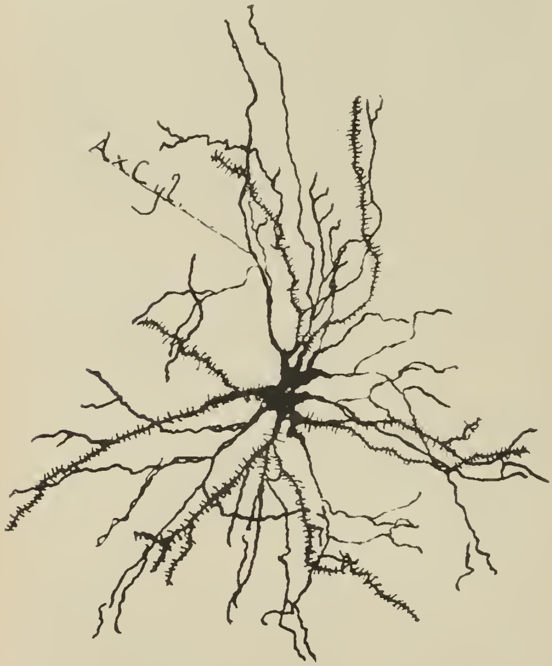
*Read before the Minnesota Academy of Medicine, March 3, 1897.

Meynert gave us five layers in his classic description of the brain cortex, but Golgi reduced these to three: first, the small pyramidal cells, second, the large pyramidal cells, and the layer of polymorphous cells. Cajal later added the *molecular layer*, composed of cells in the superficial layer which bear his name in a diffuse fibrillar network, thus making four layers. The microscope with Golgi's method soon revealed the startling fact that each cell was a *distinct and separate entity*, having no closer communication with other cells than that afforded by propinquity, and that it consisted of a large number of prolongations, termed protoplasmic processes by Golgi (dendrites by His), and the axis cylinder process.

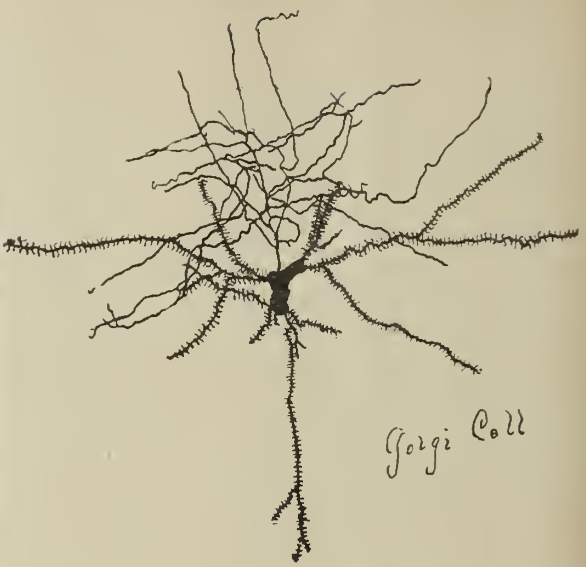
The axis cylinder process, we learned, is frequently branched and ends variously in the different organs, either spread out in the form of a brush surrounding other cells in the brain and cord, or as small buttons in the walls of vessels, plates in muscles and so on; two main types of cell occur in the brain according to Golgi; the first or motor type is pictured here:



MOTOR TYPE.

You will see here a large number of processes many of which appear feathered, and the smooth axis cyclinder going off down to the spinal cord continuous with motor fibres.

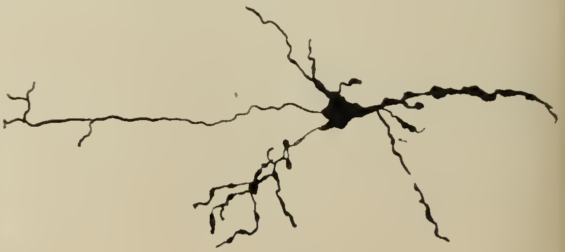
The second type or the Golgi cell, has an axis cyclinder which divides into a large number of collaterals.



Golgi calls this a *sensory cell* and believes that it has to do with sensation, while Cajal and most observers believe it to be simply an association cell, serving to connect the various parts with each other.

A third type of cell in the brain has been described by Martinotti, in which the axis cylinders are directed upwards toward the cerebral cortex, where, after having given off horizontal branches, they become continuous with certain fibres of the superficial part of the molecular zone.

Golgi explains nervous connection between cells, through a diffuse network derived from the collaterals and fibres of cells of the two types described above, in which however only an interlacement occurs, and since the protoplasmic processes do not end in nervous elements, he assumes that they pass to the vessel walls to serve as "suckers" for the plasma to pass through into the cell, which last therefore possesses only a trophic function. Golgi has seen such endings in the vessel walls, but has not pictured them, as he says it is difficult to decide with certainty, and one can be so easily mistaken. His pupils all accept this view of the function of the dendrites, and one of them, Monti, has injected lycopodium into the carotid producing embolism of the cerebral vessels, and found that it produced the picture here presented called *varicose atrophy* by Golgi.



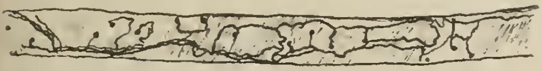
This is a condition also found by Golgi and various observers in chorea, general paresis, rabies, etc.

Cajal and most observers ascribe to the protoplasmic processes a nervous function and do not agree with the Golgi school. The *cerebellum* has been thoroughly studied by Cajal and he has proven the nervous nature of the granular cells from the character of their prolongations.

In the spinal cord, as everywhere, the fibres from the various cells do not fuse with each other, but simply terminate in a fine network surrounding ganglion cells.

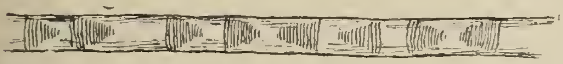
Sala has investigated the *sympathetic system* and finds the structure similar to that of the cerebrospinal, except that the axis cylinders here seem to be varicose or beaded in appearance.

The same observer has impregnated the *vasomotor nerves* of arterioles and found that these form a delicate network composed of longitudinal fibres from which wavy transverse branches spring at almost right angles ending in small buttons.



It appears therefore that the innervation of the vascular system is like that of all unstriated muscles.

In the *peripheral nerves* a peculiar series of fibres have been found running spirally in cone shape for protection of the myelin or perhaps to connect the axis cylinder with the nervi nervorum, with the apex in contact with the axis cylinder and the base with the inner surface of the sheath of Schwann.



Various workers have demonstrated the existence of nervous and *glandular fibres* in the termination of nerves in the organs.

Golgi found some peculiar corpuscles in tendons connected with the nerves.

The *neuroglia* has assumed a great importance; it is looked upon generally as a supporting connective tissue framework, but Lugaro's demonstration of neuroglia fibres surrounding nerve cells in the corpus dentatum raises a doubt as to its function.

Golgi has proven it to be made up of genuine cells, and processes entirely undivided, ending in the same manner as the processes of the ganglion cells, and that the neuroglia is connected with the vessels; at the surface of the brain the fibres are parallel and some of them are continued to the centre of the brain; also that stellate cells are most numerous nearest the surface. Gliomata come from proliferation of the stellate cells of the neuroglia.

Ramony Cajal furnished the world the conception *neuron*, by which is meant an independent unit consisting of cell, axis cylinder and protoplasmic processes; the whole nervous system is made up simply of an aggregation of these separate individuals, a conception of profound inportance when grasped in its full meaning.

Since nerve processes do not fuse with each other, the nerve currents must be transmitted in some manner from one to another, and several views as to the mechanism of this transference hold the boards at the present time.

Tanzi, of Florence, has elaborated a theory of functional hypertrophy of terminal processes. He says that the contiguity of the anatomical elements must be variable, and as His has shown that nerves normally develop from centre to periphery, he concludes that functional hypertrophy of the dendrites takes place lengthwise, resulting in a reduction of the space which separates the terminal branches of the dendrites from the axis cylinder; according to this theory, activity of mental processes is directly proportional to the functional hypertrophy of the terminal branches and vice versa. Lepine, Duval, Morat and Pupin in France look upon the protoplasmic processes as capable of amœboid movement,so that an infinitesmal retraction of the terminal filaments takes place, thus cutting off the nerve impressions constantly streaming in.

How seductive is this theory!

How easily explained by it are the phenomena of sleep, hypnotism and hysteria.

Cajal contends that the nerve cells do not move because the terminal branches of nerve cells in the olfactory bulb, acoustic ganglia, optic lobes, etc., always present the same shape irrespective of the mode of death of the animal, and because the terminal nerve branches of the retina and of the optic lobes in reptiles present the same appearance whether the animals had been in darkness or light a long time before being killed. While he thus denies mobility in the neuron, he maintains, on the other hand, that the neuroglia cells possess a great degree of mobility and that their fibres are really insulators, and by interposition between terminal filaments break the connection. As Dercum points out, this in reality presupposes some degree of motion in the neuron, although it may be passive.

Wiedersheim actually saw the nerve cells move in the œsophageal ganglion of a living animal (a crustacean). As this ganglion receives the fibres of the optic nerve it may be looked upon as the brain, an observation of weight in this connection. Nansen has advanced the view that the old idea relative to the composition of the reflex arc is untenable, and he says that the arc is formed by the centripetal nerve and its fibrillary modifications passing directly to the molecular layer of the cortex; secondly, by the propagation of the excitation through this; and thirdly, by the transmission of stimuli to the minute lateral branches of the motor nerves, thus leaving out the cell entirely.

Agreeable to this view the cells, as Golgi maintains, possess only trophic function, and the collections of gray matter at various levels of the cord are only inns where the axis cylinders can be refreshed with a bite of phosphuretted fat and a drink of albuminous plasma.

That the cells must be nourished is apparent, and that the nutrient plasma may reach it through a dentritic canal is plausible, but to make the cell *only* trophic in function is to do violence to all our biological knowledge, which teaches that the cell is the essential element of living structure, and means that we are to confer upon a plexus of fibres all the attributes of the mind.

Mental action is certainly in my opinion nothing but a reflex act, complicated because of the innumerable corollary and associated reflexes produced in the maturer mind by even the simplest impression.

It seems as though this action follows purely mechanical lines, and a sensation coming from without induces some sort of vibration which is transmitted through the the nervous fibres to the cortex, whence it travels along innumerable connections to the various paths in the brain, but especially along *paths travelled before*, the particular notion or actions resulting depending simply on what such, or an analogous impression, has produced in the previous experience of the individual.

The mind, or psychic ego, is an entity, made up of all the elements of the nervous system in which various specializations of function have occurred.

In the Rolandic region, as we know, are the sensory-motor centres; in the fronto-temporal region are the areas which have to do with speech and sound; in the occipital is the centre for sight, etc.

Flechsig has recently expressed the opinion after many years of research on the subject that the so-called silent areas of the brain (frontal lobes, etc.) are the seat of what we denominate intelligence with more or less specialized function; these areas do not receive projection fibres from below but are connected with the so-called sensitive areas, among which he includes the motor zone.

Now a word about the ultimate structure of the nerve: Golgi's stain is valueless for detecting changes in the intimate structure of nerve cells, and here Nissl's stains fill the gap.

Flemming and Nissl have given us a great deal of information as to the interior of the cell, of the protoplasm, which has been in the main fully corroborated by later investigators.

It is now generally conceded that the structure of the protplasm of the nerve cell is fibrillar, the fibrils being connected into bundles in the axis cylinder.

Nissl's stains show the cell body to consist apparently of an *achromatic* substance (the conducting matter), of a *chromatic* substance (insulating material), and a *fundamental* or ground substance. Upon stimulation of ganglia it would seem that the nuclei and nucleoli increased in size, and that the chromatic substance increased in amount, the last being also disposed in various different ways in the body of the cell.

Working with these stains in experimental pathology, has demonstrated the important fact that regeneration of a nerve cell, once destroyed, does not occur.

Having thus reviewed hastily and incompletely for you some of the newer facts in neuro-histology, I think we are justified in saying that the knife and microscope, in spite of the apparent hopelessness of the task, are unlocking for us the secrets of mental action; at last we have something of a material working mechanical hypothesis, deduced from anatomical investigation and not caught from the air of some so-called philosopy.

To the recently published letters of that brilliant worker and critic Marinesco, I am indebted for most of the data of this sketch.

Lowry Arcade.

A recent writer on herpes zoster in children stated that it was rarely that they failed to present something which might predispose them to the disease. Nervous accidents or shocks before the appearance of the herpes were particularly noted. Among the occasional causes a traumatism, which preceded by three weeks a brachial zoster, may be cited. Another time vaccination was followed after eight days by the zoster.

Dr. W. W. Keen says that in gangrene following the continued fevers, especially typhoid, it is best, as a rule, to wait for the line of demarcation, but the operation should not be deferred long after its appearance. If danger of septic infection or speedy exhaustion should appear, immediate amputation at or above the probable limitation of the disease should be done. The extension of the disease, if the femoral be free, will not be, in the majority of cases, above the tubercle of the tibia. If the femoral be involved, necessitating an amputation of the thigh, the resources and the safety of modern antiseptic surgery would lead us in general to amputate, but in some cases it may be a serious question whether expectant treatment and a relatively long-subsequent amputation might not be less dangerous than an easlier operation.—*Boston Medical and Surgical Journal.*

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A HEALTH GIVING AGENT.

Among the many causes that have been brought forward to explain the admitted decrease in the total amount of medical practice, little attention has been paid to an innovation that has come into very general use within a few years, and that is the bicycle. The medical journals have discussed freely the pros and cons of bicycle riding, with the result that professional sentiment has shown itself strongly in favor of this new form of exercise; there could never be any question that riding a wheel would be a good thing for the vast majority of men, but the resemblance between the action of a wheel and that of a sewing machine has caused some doubt about the matter in the case of women, and medical practitioners have in general been somewhat cautious in their advice when consulted by women on the question of bicycle riding.

The wheel has now been in general use by both sexes for so long a time that any decidedly injurious effect upon women would infallibly have been noted and reported. The particular bad effect looked for in women who ride is some disturbance of the pelvic organs, but there is no testimony that any such result has been observed, and for women who have no uterine displacement nor inflammatory disturbance of the womb or its adnexæ, there is really no reason why the wheel should be more harmful than it is for men. But given a case of displacement that deserves to be called pathological, particularly if the womb be also enlarged, or a case of chronic inflammation of the tubes, ovaries or other structures contained within the pelvis, and it might well happen that the exercise of bicycling should be harmful.

On the other hand there are those who maintain that pelvic disturbances in women are an indication for the use of the wheel. That the circulation in the diseased parts is quickened by the exercise, and that the result is not an increased congestion with aggravation of the existing malady, but an improved nutrition, a greatly increased absorption of morbid products and an accelerated return of hypertrophied organs to their natural dimensions. The prudent physician will no doubt distrust claims that appear to him to be extravagant, and for patients with pelvic trouble will advise that it be used, if at all, only with great caution, that it may be abandoned should there be signs that it was proving to be injurious.

Much has been said of the bad effects arising from improperly constructed saddles, and the discussion of the question of the production of erethism in women has been carried in some quarters beyond the bounds of reason, not to say of decency. As a matter of fact the most striking effects of badly constructed saddles have been seen in men, in whom many cases of prostatitis and the lighting up of slumbering urethitis have been traced clearly to pressure upon the perineum. This class of evil effects is plainly avoidable and should not be counted as militating against the use of the wheel in general.

The beneficial effects of bicycling must have been observed by every medical man. They are perhaps more conspicious in the city than in the country, because the typical city man is just the one to whom the wheel comes as a godsend. He is a man who eats much, exercises little, spends his day in a close and usually badly ventilated room, and rides home at night on a still more close and badly ventilated street car. It is of little use to prescribe walking for such a man, for he will not walk without an object, justly claiming that such walking is unbearably stupid. The most that can be done with him is to induce him to walk down to his business. On Sundays and holidays he gets some fresh air, to be sure, in the season when it is pleasanter to sit out of doors than in the house, but there is no way to get him to take exercise, unless he is well enough off to afford a horse and ride; as a matter of fact the horse back riders who take regular exercise in the this way may be counted upon the fingers, at least in a place the size of St. Paul. But give a wheel to such a man as has just been described and all is changed. He gets about on it so quickly, so easily, and above all so agreeably that there is little difficulty in getting him to use it in place of the street cars, and perhaps he may be induced to ride home to lunch, with the double gain of getting additional exercise and a break in the long business hours that will surely lengthen his days. To many, riding a wheel is so great a treat that they take every opportunity to go on pleasure trips' and exercise more in a week than formerly they did in a year.

The great point about bicycling as an exercise is that it must be done in the open air. The actual exercise is of secondary importance to the benefit from the quickened respiration of fresh air. There is much more muscular exercise and development to be had from gymnasium work, but the fact that that is done indoors makes it vastly inferior to the bicycle as a health producer. Rowing is to be classed with the wheel as a healthful exercise, but is not so easy to get, and for many men is too hard work; tennis is also too exhausting for many people, one of the great advantages of the wheel being that it may be made to furnish gentle or severe exercise as the rider chooses. Perhaps the most conclusive evidence of the beneficial effects of bicycling is found in the many cases of nervous and digestive troubles that have done very well during the mild season while using the wheel freely, to relapse into their former condition towards the end of the winter, when four months of ice and snow have shut them off from their healthful pastime.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. BEARD, M. D., SECRETARY.

STATED MEETING, MARCH 3, 1897, at the West Hotel, Minneapolis. The President, Dr. W. A. JONES, in the Chair.

Dr. J. H. MARTINDALE, of Minneapolis, presented a specimen of myxoma of the middle turbinated bone, remarkable for its size and the difficulty attending its removal.

Dr. F. A. DUNSMOOR, of Minneapolis, exhibited a femur, showing a spindle-celled sarcoma upon the shaft, the patient's leg having been amputated at the hip. Dr. DUNSMOOR said that at the time the patient presented himself it seemed desirable that a walkable stump should be given him by amputation at the upper third of the femur, but upon further consideration it was decided to amputate by dislocation of the hip. But little blood had been lost at the time of the operation, but, three weeks later, a secondary hemorrhage of grave extent occurred and made it necessary to cut down upon and ligate the femoral artery near Poupart's ligament. After this, the patient had progressed favorably.

Dr. J. CLARK STEWART reviewed the history of such cases.

This tumor, he said, was a central sarcoma eroding the compact bony tissue. He had seen an operation performed, two years ago, upon a patient who had, at first, a pulsatile tumor of the first metatarsal bone. Upon this account the dorsalis pedis had been ligated by another physician. Later a tumor of the tibia developed, a diagnosis of central sarcoma was made, and amputation performed at the knee. At that time the saphenous vein was found to contain new tissue indentical with that of the primary tumor. Later the patient died of visceral recurrences. He thought that Dr. DUNSMOOR had done the right thing in amputating at the hip, but he had heard Dr. C. A. WHEATON express the opinion that, in these cases, the disease always recurs.

Dr. STEWART presented a preliminary report upon a case of multiple cysts of the mammary glands and exhibited the removed organs.

Dr. A. W. ABBOTT, of Minneapolis, presented specimens in the way of the uterus and annexæ and the heart removed at the autopsy of a patient who had died suddenly, apparently from a thombus of the pulmonary artery or the right heart, after a minor pelvic operation.

DR. HALDOR SNEVE, of St. Paul, read a paper entitled

NEWER DISCOVERIES IN THE HISTOLOGY OF THE NERVOUS SYSTEM.

See page 131.

The paper was discussed by Dr. C. E. Riggs, of St. Paul, who briefly reviewed the history of the investigation of the embryonic nervous tissues, in which had been found the simple plan of the nervous system which had enlightened our understanding of the subject more than all the previous studies of the adult brain and spinal cord. He referred briefly to the modern methods of research prosecuted by Ehrlich, Golgi, Ramon, Y. Cajal and others, and enlarged upon the discoveries which had 'been made by these methods. They were wonderful facts, to which Dr. Sneve had called attention in a very happy manner. Those facts and methods had given our investigations a stability which they had never before had.

It was fair to add that some of the results obtained by Golgi had been questioned by Hill, of Cambridge, and that the latter's opinion had been endorsed by Robinson, of Edinburgh.

Dr. W. A. Jones, of Minneapolis, read a paper upon

TYPES OF BRAIN TUMORS

the discussion of which was postponed on account of the lateness of the hour. The paper was illustrated by several specimens.

RAMSEY COUNTY MEDICAL SOCIETY.

Burnside Foster, M. D., Secretary.

Annual meeting, January 25, 1897, at the Society's rooms in the Lowry Arcade, St. Paul:

The following officers were elected for the ensuing year:

President: Dr. J. W. Chamberlin.
Vice President: Dr. J. A. Quinn.
Secretary: Dr. Burnside Foster.
Treasurer: Dr. O. S. Pine.
Necrologist: Dr. A. F. Whitman.

BOOK NOTICES.

Why We Punctuate. By A Journalist. St. Paul and Minneapolis: The Lancet Publishing Co. 1897.

It is seldom in these days of superabundant bookmaking that an author can justly claim to have filled a gap in literature. The announcement that a new book meets a long felt want is common enough on the part of the publisher, but the public after reading the work is often ready with the verdict that had it never been written, the book, in the language of the song, "would never have been missed."

As a matter of fact works on punctuation are so rare that before this one was published there was but one treatise on the subject in the English language, and that was out of print. The present writer, therefore, had a clear field in which to work, and with almost no authorities to fall back upon must himself furnish everything—plan, rule, explanation and illustration. The task was a novel one for the present day, when almost every literary subject has been written about so much that the bookmaker can only rearrange and reword what has been said before, and is fortunate if he is able to add even a few ideas of his own.

To many people the task of punctuation is so hopeless that they are ready to follow the course of the letter writer who put no marks into his epistle, but at the bottom made a number of commas, periods and semi-colons with a note asking the reader to distribute them to suit himself. To divide an article into proper paragraphs, to get in periods at the right places and to scatter commas so that at least a majority of them will hit the right spot, is the summit of ambition for the average writer. As for anything like an intelligent use of the colon and semi-colon, there are few whose ambition in writing soars to so great a height. And yet these two last mentioned marks, particularly the semi-colon, are often of the greatest value for the exact expression of the author's meaning. In fact their intelligent use may be just enough to make the difference between a fine style and mediocrity. No one can fail of this conviction who reads the chapter on the semi-colon in "Why We Punctuate," whose author evidently shared the admiration said to have been felt by Lincoln for this punctuation mark, one of the highest value to a plain, direct and forcible style like Lincoln's.

The value of the colon is also illustrated in such a way as must inspire the would-be writer with the liveliest desire to master the principles governing its correct use. The comma demands the most space in the book because of the multiplicity of its uses, which are perhaps best illustrated by examples that show the mischief caused by its wrong employment. The author fairly discusses the many situations where opinions are at variance as to the use of this mark; examples of this are the question of putting the comma in series before "and" and "or," or before the verb when the subject is a multiple one. On these points, as on others where usage is unsettled, "A Journalist" supports his own views with arguments that must be admitted to be logical and forcible.

A Practical Treatise on Diseases of the Skin. By James Nevins Hyde, A. M., M. D., Professor of Skin and Venereal Diseases, Rush Medical College, Chicago; etc., and Frank H. Montgomery, M. D., Lecturer on Dermatology and Genito-Urinary Diseases, and Chief Assistant to the Clinic for Skin and Venereal Diseases, Rush Medical College, Chicago; etc. Fourth Edition. Illustrated. Phila: and New York: Lea Brothers & Co. 1897.

Dr. Hyde's work on diseases of the skin has been accorded so high a place among treatises on this branch of medicine that this, the fourth edition is that of a standard and recognized authority.

The changes from the last edition are rather in the form of re-writing of chapters than of any addition to the divisions of the work; there are also several new illustrations. The author has been particular to add whatever is new in the way of the pathology and bacteriology of diseases of the skin, recognizing the fact that the tendency of modern investigation is to trace to the agency of a living organism many of the dermatological affections.

The Year-Book of Treatment for 1897. By Many Contributors. Phila: and New York: Lea Brothers & Co. 1897. [Price, $1.50].

The thirteenth volume of this valuable work is made up of chapters contributed by practically the same staff that wrote for the work in 1896. The fact that these contributors are all British practitioners gives the work an added value to the American reader by holding up to him a mirror of therapeutic progress across the water during the past year. The book is divided into twenty-five sections covering every branch of medicine, and the work of review has in all cases been thoroughly and carefully done.

A System of Practical Medicine. By American Authors. Edited by Alfred Lee Loomis, M. D., LL. D., Late Professor of Practical Medicine in the New York University, and William Gilman Thompson, M. D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the New York University. Volume I. Illustrated. Phila: Lea Brothers & Co. 1897. [Price, $5.00 per volume].

Some time before his death the late Dr. Loomis undertook the task of getting up a system of medicine that should represent the progress and present position of the art in this country. Fortunately for the success of the work he was enabled to arrange the plan and secure the authors for the undertaking before he was stricken with a sickness which proved fatal. His name may therefore be fairly associated with the treatise, although it is understood that he actually contributed but one article and that not in this volume.

To began with general rather than with topical affections, the first half of the work deals with the infectious diseases, beginning with an article on malaria by Wm. H. Welch and including chapters on typhoid, by James C. Wilson, on yellow fever by Sternberg, on tuberculosis by Osler, on pyæmia and septicæmia by Atkinson, and other papers by well known medical writers.

MISCELLANY.

TWELFTH INTERNATIONAL MEDICAL CONGRESS.

MOSCOW, RUSSIA, AUGUST 19-26, 1897.

In a letter dated Moscow, February 14, the Secretary General, Prof. W. K. Roth, communicates the following facts for the information of the American physicians who intend to participate in the 12th International Congress which is to be held at Moscow from August 19 to 26.

The Transatlantic Steamship Companies refuse one and all any reduction of the usual charges. In their replies, most of which are couched in courteous language (the originals are in the possession of the undersigned), they admit the existence of a trust, or contract, or agreement which prevents them from lowering their prices; a few are so polite as to express their regrets.

Reductions of fares on Russian railroads are expected shortly. The French, Spanish, Swedish and Hungarian railroads promise a reduction of 50 per cent.; so do the Italian for a distance of 500 Kilometres; less (down to 30 per cent.) for shorter distances. The Mediterranean lines (Messageries Maritimes, General Italian Navigation Company, Austrian Lloyd) grant from 25 to 50 per cent.

The undersigned chairman is not authorized to issue certificates of any kind in favor of congressists. He will try to ascertain, however, in which way their movements may be facilitated, and may receive a reply in the second half of April. Extracts of papers to be read before any of the sections ought to reach the Secretary General before June 1 in order to be printed in the preliminary volume.

A special prospectus containing the final details referring to traveling, lodging, festivities, etc., is promised for a near future. It will be communicated at once to the medical journals, and to the press of the country.

A. Jacobi,
Chairman American National Committee.

New York, March 10, 1897.

NOTES.

A DESERVED EUROPEAN INDORSEMENT.

Health, a weekly journal of medicine and surgery, diet and sanitary science, London, Eng., says editorially: "We have received from The Antikamnia Chemical Company, St. Louis, Mo., U. S. A., a brochure dealing with the action, history, indications and administration of their preparation, antikamnia. There is no remedy so useful and attended with such satisfactory results in the treatment of melancholia with vaso-motor disturbances, anæmic headaches, emotional distress and active delusions of apprehension and distrust; and it also increases the appetite and arterial tension, and promotes digestion, as well as being particularly serviceable in relieving the persistent headache which accompanies nervousness.

"In neurasthenia, in mild hysteroid affections, in the various neuralgias, particularly ovarian, and in the nervous tremor so often seen in confirmed drunkards, it is of peculiar service. In angina pectoris this drug has a beneficial action; it relieves the pain and distress in many cases, even when amyl nitrite and nitroglycerine have failed entirely. In pseudo-angina frequently observed in hysterical women, its action is all that can be desired.

"To patients who suffer from irritable or weak heart, needing at times a pain reliever, it can be taken without untoward after-effects, knowing that the heart is being fortified. It increases the elimination of urea and purifies the blood without increasing the destructive tissue metamorphosis. It lessens coma and loud delirum by contracting the capillaries of the brain. In delirium tremens, it relieves when there is great restlessness with insomnia, as well as general lowering of the nervous power."

FOUR STANDARD REMEDIES THE MEDICINAL EFFECTS OF WHICH PHYSICIANS MAY FULLY RELY ON.

Dioviburnia, the most powerful and trustworthy uterine tonic attainable (of which the most eminent gynæcologists bear testimony) in dysmenorrhœa, amenorrhœa, menorrhagia, leucorrhœa, subinvolution, threatened abortion, vomiting in pregnancy, chlorosis, etc,

Neurosine, the standard neurotic, anodyne and hypnotic, unexcelled in hysteria, epilepsy, neurasthenia, mania, chorea, uterine congestion, migraine, neuralgia and all convulsive and reflex neuroses, containing no chloral or morphine.

Palpebrine, is what the name would indicate, a most reliable remedy for external eye diseases, highly recommended in simple, acute and chronic catarrhal, venereal, blenorrhœal and strumous or scrofulous conjunctivitis, marginal blepharitis and inflammation of the lachrymal sac and other external inflammations of the eye. Palpebrine in the hands of the general practitioner will enable him to treat successfully the external affections of the eye without having to send such cases for treatment to the specialist.

Sennine is unexcelled as a dry antiseptic dressing and is a specific in the treatment of old sores, ulcers, bubo, eczema, pruritus, burns, scalds, etc., whenever a dry antiseptic dressing is applicable; being entirely odorless it will save both the practitioner and the patient disagreeable odors as well as those they come in contact with. Sennine is a very fine white powder put up in two oz. perforated top boxes, making it convenient to apply upon wound surface.

These four products are manufactured by the Dios Chemical Co., which is sufficient guarantee that they are entirely reliable and contain such drugs as the formula of each indicates, which they freely circulate to the profession only.

DANGEROUS SPURIOUS IMITATIONS—SO-CALLED COCA WINES WHICH ARE A SOURCE OF DANGER.

The attention of the medical profession is earnestly directed to the various dangerous decoctions masquerading as coca wine. These decoctions are intended as meretricious imitations of the standard French preparation, "Vin Mariani," which has been so widely endorsed by and whose merits are so well-known to the medical fraternity, that it would be superfluous to enter into any lengthy enumeration here of its virtues.

Investigation discloses that these so-called coca wines are generally variable solutions of the alkaloid cocaine, in sweetened wine of a low grade (artificial wines). Quantities of such so-called coca wine have been seized upon by various health authorities and destroyed. Any physician will realize the danger ensuing from the use of decoctions of such a character.

These spurious and dangerous preparations are having the effect of causing misapprehension and working an indirect injury to a really valuable drug, for the real usefulness and value of coca, when conscientiously prepared and properly administered, have long since been recognized by the medical fraternity.

There have been placed on file by Mariani & Co. more than 8000 endorsements from leading practitioners, all coinciding as to the meritis of "Vin Mariani." It can thus be claimed, "Never has anything been so highly and justly praised."

Physicians will not encounter disapointment whenever using "Vin Mariani" the standard French coca wine, as an adjuvant in treatment, as a tonic-stimulant, and as a restorative in cases of profound depression, anæmia and exhaustion. It has stood the test in practice during nearly thirty-five years, and during that period has been strongly endorsed as a reliable and standard preparation by many of the most honored names in the medical profession both in this country and in Europe.

Physicians are, therefore, earnestly urged, when prescribing coca, to insist that their patients procure "Vin Mariani," thus avoiding any failure in results and insuring positively no unpleasant or dangerous after effects.

Extract from a letter received from Dr. Henry Schwarz, professor of gynæcology, St. Louis Medical College (Medical Department of Washington University), consulting gynæcologist to the St. Louis City and Female Hospital, etc., 1723 Chouteau Avenue, St. Louis, Mo., under date of February 28, 1897:

Campho-Phénique Powder I use now almost exclusively in place of iodoform, and find it more pleasant, less dangerous and equally effective. This is especially the case in the treatment of perineal and other lacerations and accidents of parturition.

In persistent vaginal catarrh and in gonorrhœal vaginitis, the free use of the powder, applied by means of a powder-blower, has given admirable results.

Liquid Campho-Phénique applied to the uterine mucous membrane in the different forms of endometritis has proved highly satisfactory in my hands.

AN OLD AND WELL-TRIED FRIEND.

The Youth's Companion will celebrate its seventy-first birthday in 1897. Among the attractive announcements of the paper for the coming year is an article by Mr. Andrews Carnegie on "The Habit of Thrift." Successful men in other walks of life will second Mr. Carnegie's paper with readable, practical articles. The non-partisan editorials, the "Current Events" and "Nature and Science" departments are of special benefit to those who wish to keep informed of the world's progress. Of course there will be the usual high-class fiction. New subscribers who send $1.75 to *The Companion* will not only receive the paper for a year, but will receive free a very beautiful Calendar, printed in twelve colors. The illustrated prospectus of the next volume may be had by addressing

The Youth's Companion,
205 Columbus Ave., Boston, Mass.

Dr. James Reekie, Fairview, N. M.: So wide is with me the range of application of "Sander & Sons' Eucalypti Extract, Eucalyptol," that I carry it with me wherever I go. I find it most useful in diarrhœa, all throat troubles, bronchitis, etc. My usual mode of application varies from ten per cent. to fifty per cent., according to the case, say fifteen per cent. Eucalyptol (cut with alcohol), golden seal fld., thirty-five per cent., water fifty per cent. Equal parts of turpentine and Eucalyptol applied in cases of erysipelas have splendid effect.

A PURE WATER.

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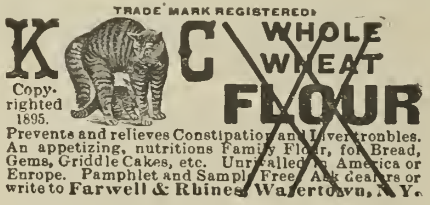
The Indian Medical Springs water is a positive preventive for typhoid fever, if used exclusively. Also a cure for rheumatism, kidney disease, eczema and all of the allied diseases of the bladder and stomach. It acts especially upon the gastric juices of the stomach, aiding the assimilation of the food, and producing new blood, which no medicine will do.

It is of a superior character, and has no equal as a mineral water, and as such we recommend it to all readers who desire the best medicinal water in the world.

The Indian Medical Spring Water is sold as low as any other water. For prices, etc., call upon, or write to

THE INDIAN MEDICAL SPRING WATER CO.,
404 Masonic Temple, Minneapolis.



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BELLEVUE HOSPITAL MEDICAL COLLEGE.
CITY OF NEW YORK.
SESSIONS OF 1897-98.

The REGULAR SESSION begins on Monday, September 27, 1897, and continues for twenty-six weeks. Attendance on four regular courses of lectures is required for graduation. Students who have attended one full regular course of lectures at another accredited Medical college are admitted as second-year students without examination. Students are admitted to advanced standing for the second, third or fourth years, either on approved credentials from other accredited Medical Colleges or after examination on the subjects embraced in the curriculum of this College.

Graduates of other accredited Medical Colleges are admitted as fourth-year students, but must pass examinations in normal and pathological histology and pathological anatomy.

The SPRING SESSION consists of daily recitations, clinical lectures and practical exercises. This session begins March 28, 1898, and continues for twelve weeks.

The annual circular for 1897–8, giving full details of the curriculum for the four years, requirements for graduation and other information, will be published in June, 1897. Address AUSTIN FLINT, Secretary, Bellevue Hospital Medical College, foot of East 26th Street, New York City.

ORIGINAL ARTICLES.

BRONCHO-PNEUMONIA OF CHILDREN.*

By Chester M. Carlaw, M. D.

Minneapolis.

While lobar or croupous pneumonia is nearly as frequently written about as our old friend appendicitis, it is seldom that we read of broncho-pneumonia in medical literature. This is rather surprising when we remember that next to cholera infantum it carries off the largest number of children yearly.

There seems to be no form of pneumonia that does not have associated with it more or less bronchitis, so that every pneumonia is in one sense a broncho-pneumonia, but it has long been recognized that there is one form of inflammation of the lung which differs from others, and in which the share of the bronchi is especially important.

Until lately a distinction was made between capillary bronchitis and broncho-pneumonia, but a true capillary bronchitis without any involvement of the lung structure is very rare, and it is now common to consider the affections together. Broncho-pneumonia is almost essentially a disease of children, occurring more frequently between the ages of six months and four years. It is generally secondary to bronchitis. The bronchitis of the infectious diseases is particularly prone to terminate in broncho-pneumonia, especially that of measles. The next most important precedent is whooping cough, then comes diphtheria and other contagious diseases. Following simple bronchitis it is not frequent, but does sometimes follow in young infants under six months of age and during dentition. When it occurs with measles, it usually develops as the rash is going away, but sometimes later, and occasionally precedes the rash. Its occurrence with the other infectious diseases is always a late manifestation.

PATHOLOGICAL HISTOLOGY.

A cross-section of a small broncho-pneumonic focus shows the following changes: In the centre is a bronchus filed with a plug of exudation, consisting of leucocytes, epithelial cells and pus. The walls of the bronchus will be seen to be thickened and infiltrated with new cells, showing that the inflammation is a productive one; a longitudinal section of a bronchus would show irregular dilatations. The air cells next the bronchus will be found densely filled, while near the periphery of the pneumonic focus they are much less so. The alveoli contain serum, leucocytes, epithelial cells, pus corpuscles, and possibly some fibrin, especially in the pseudo-lobar fórm. The contents of all the alveoli are not the same at the same time; some contain nearly all serum, while others contain nearly all pus. The alveolar walls will be found infiltrated with leucocytes and the capillaries distended. *The inflammation extends not only to the terminal alveoli of the bronchi affected, but to the alveoli and lobules that lie in contact with or surround those tubes.*

The patches of broncho-pneumonia may be small and disseminated throughout both lungs, or they may run together and form a large patch of hepatization; this constitutes the pseudo-lobar form, which Mosney considers to be croupous pneumonia modified by the conditions of childhood.

There are no distinct stages in the morbid anatomy of broncho-pneumonia as in the lobar form; it develops by irregular invasion of successive portions of the lung, and the process resolves in a like manner. Resolution is always slow owing to the fact that the product of inflammation is largely cellular.

A number of different microörganisms have been found in broncho-penumonia, the most frequent germ being the streptococcus pyogenes. The staphylococcus pyogenes aureus, is also common, hence the presence of pus in the exudate.

The pneumococcus of Fraenkel is found in a few cases, and Mosney says, when they are found the *disease* is nearly always pseudo-lobar. Friedlander's bacillus and the tubercle bacillus have also been found.

The question of the relation of tuberculosis and broncho-pneumonia in children is receiving considerable attention at the present time. We may look upon this question under two headings:

First: Broncho-pneumonia may be tuberculous from the start. Osler says: "Acute tuberculous broncho-pneumonia is common in children from six months to five years of age, a large proportion of cases occurring after the second year. It particularly follows measles and whooping cough." He recognizes three groups of cases:

(a) Cases which run a short or acute course, death occurring within a few days, and the lungs showing areas of broncho-pneumonia which, macroscopically does not look tuberculous, but microscopically miliary granulations and bacilli are found and tubercles are usually found in the bronchial glands.

(b) In this group the cases usually live for a month or six weeks with the ordinary symptoms of a severe broncho-pneumonia. After death caseous masses are found and sometimes small cavities. The bronchial glands may be broken down or contain an abcess.

(c) Here the symptoms are more chronic from the start and commence during convalesence from an infectious disease. The clinical picture usually gradually develops into that of chronic phthisis.

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* Read before the Hennepin County Medical Society, February 3, 1897.

Secondly: Tuberculosis may be engrafted upon or follow simple broncho-pneumonia. Osler admits that a broncho-pneumonia simple in its orgin may subsequently be the seat of infection by the bacillus of tuberculosis, but looks upon the majority of cases as tuberculous from the beginning.

PATHOLOGY.

With regard to the pathology or the manner in which broncho-pneumonia is brought about, many theories have been advanced. The old theory was that it was due to collapse. That collapse does occur in broncho-pneumonia is true, but its occurrence must be considered accessory, and not a stage of its process or a cause of the disease.

Another old theory is that it is a simple inflammation of the mucous membrane of the bronchi, *which extends into the air sacs of these bronchi only.* This theory is likewise erroneous.

The theory advanced by Delafield is that broncho-pneumonia is an infectious disease, characterized by a productive inflammation and infiltration of cells in the walls—not the mucous membrane—of the bronchi and peri-bronchial tissue, and by the growth of pathogenic germs; and that the disease spreads to the alveoli or lobules surrounding or lying upon such bronchi that are the seat of disease, and not merely to the lobules of these bronchi only. This is the view now generally accepted. The pathogenic germ most active in the causation is the streptococcus pyogenes (Weichselbaum).

Whether this inflammation can be caused by the poison of certain infectious diseases remains for further investigation. That the disease is more frequently associated with measles than all other diseases combined is true, and that it is more liable to occur in cases where the external manifestation (the rash) of the poison is not well marked, is also a clinical fact; but whether the poison of measles is in itself capable of producing that disease, or whether it simply renders the soil more susceptible to the action of other poisons which produce the disease is a question to be determined.

SYMPTOMS.

Broncho-pneumonia may run an acute, subacute or a chronic course.

Acute broncho-pneumonia is the most frequent form and usually follows measles.

In young infants, according to Delafield, the only symptoms are fever, prostration and rapid breathing. There is no cough nor physical signs, and the disease proves fatal within a few days.

In older children the symptoms may be largely marked by those of the preceding disease. The cough becomes short, hacking and painful, increased respiration, 60 to 80 per minute, which is frequently irregular; expiration is generally accompanied by a grunting sound. The pulse is increased in frequency, generally 136-160 per minute; at first it is full and tense, later it becomes feeble, small and compressible. A pulse of 200 is not incompatible with recovery.

The temperature is not as a rule high, seldom being over 103° F. and generally runs an irregular course. Dyspnœa is usually marked and frequently paroxysmal. The child at first devotes all its attention to getting sufficient air, later more or less cyanosis occurs, and if this increases the child becomes drowsy from the benumbing influence of the carbonic acid on the nerve centres, and then the strenuous efforts to breathe cease. Vomiting and diarrhœa sometimes occur late in the disease.

Subacute broncho-pneumonia most frequently follows whooping cough. In this form the rise of temperature is more gradual and does not run so high as in the acute form. Sometimes the preceding whooping cough loses its paroxysms. The child usually loses flesh rapidly and has profuse sweatings and periods of exhaustion.

Chronic broncho-pneumonia frequently follows an acute attack, or it may be chronic from the start. When it follows the acute form, the physical signs usually persist, although as far as the symptoms are concerned apparent recovery has occurred, the fever usually returns after a variable time and the child becomes more and more emaciated, lengthened periods of very slight fever being interrupted at times by a slight rise in temperature. The temperature seldom rises over 102° F. There is cough and increased respiration, the pulse is frequent and feeble. These cases may die after a few months from exhaustion, or may recover after many months with more or less permanent damage to the lungs, or, as frequently happens, they may terminate in acute miliary tuberculosis.

One point of clinical importance is that broncho-pneumonia sometimes gives rise to cerebral symptoms of so pronounced a character that one may easily suppose the case to be one of acute cerebro-spinal or tuberculous meningitis. These cases may progress acutely with high fever, prostration, vomiting, strabismus, alternating delirium and stupor, retraction of the occiput or even opisthotonos. One or more convulsions may occur, the respirations may be slow and irregular; in some cases these nervous symptoms may subside in from two to ten days and the pulmonary symptoms predominate.

PHYSICAL SIGNS.

The physical diagnosis of an acute and not very extensive broncho-pneumonia belongs to the most difficult task in this department of our science. In many cases the physical signs are extremely uncertain and ill defined, and aid but little in making a diagnosis. Osler says: "In many cases, death takes place before any definite pneumonic signs are detected."

Inspection. Considerable information can be gained by a general inspection of the little one. In the early stage the child generally has an anxious look, the eyes are frequently sunken, the face is at first flushed, which later may alternate with periods of lividity; the action of the alæ nasi is marked. Later, when the poisonous influence of the carbonic acid is manifest, the child becomes more passive and frequently semi comatose. In severe cases the face assumes a dusky hue, the lips and finger nails become cyanotic and the child may pass into deep unconsciousness. The tongue in the early stage is moist and lightly coated with a gray coating, later it becomes dry and more heavily furred. Sordes collect on the teeth, and at the angles of the mouth; the lips become dry and cracked; herpes labialis is sometimes seen, but not so frequently as in croupous pneumonia. Emaciation may progress rapidly, and may become extreme when the disease follows whooping cough.

Inspection of the thorax will generally reveal the movements to be frequent and shallow. During inspiration the upper portion of the thorax is elevated, while the lower part recedes. The action of the accessory muscles of respiration is marked.

Percussion. This should be done very lightly; over such consolidated patches that are large enough to give signs the percussion note is less resonant than normal, and conveys a sense of resistance to the finger. These patches usually occur on both sides of the chest behind, from the spine of the scapula to the base of the lung.

Auscultation. Râles of all sorts and sizes are heard in the early stage; sibilant and sonorous râles, due to bronchitis, are early heard; large and small mucous râles are also present, which may be modified or temporally removed by coughing. As the capillary tubes become involved the sub-crepitant râles make their appearance; these when heard over both bases behind, should always excite suspicion of broncho pneumonia. Crepitant râles are also heard, especially at the edges of a consolidated patch, due to congestion and œdema of the lung tissue around the periphery of the consolidated focus. As the patches of parenchymatous inflammation increase in size the normal respiratory sound over them becomes diminished in intensity. Later the normal quality of the sound becomes changed, the vesicular element becomes diminished and the bronchial character manifests itself, which later may predominate; hence, instead of vesicular, we get broncho-vesicular breathing. This is about as far as the quality of the sound becomes changed in ordinary cases. But if the area of consolidation increases in size, then we have the quality of the sound still farther changed, and instead of the broncho-vesicular character we get an entire loss of the vesicular elements and bronchial breathing is the result. Tubular breathing, which is common in lobar-pneumonia, is rarely or never heard in disseminated broncho-pneumonia. The vocal resonance over consolidated areas of sufficient size may be exaggerated, but rarely reaches the degree of bronchophony. In the pseudo-lobar form the breathing may become tubular in quality and bronchophony well marked.

DURATION AND TERMINATION.

When broncho-pneumonia ends favorably, improvement is gradual, the temperature falls slowly (lysis), the gradual decline usually being interrupted by more or less marked and frequent exacerbations and remissions of fever. In the pseudo-lobar form the temperature sometimes ends by crisis, the cough diminishes at the commencement of convalescence, but usually continues for some time after all other symptoms have subsided. We must be cautious and not confound the subsidence of the marked general symptoms with a full restoration of the affected areas. A considerable period of time is required for this latter process to be completed, and during this time the lung tissue continues in a highly sensitive state.

With reference to the obvious symptoms it may be said that mild cases generally terminate in seven to twelve days; severer cases in 14 to 28 days. The sub-acute and chronic cases may continue for several or many months.

In acute cases, which end fatally, as the implication of the lungs increases and the fatal termination approaches, the urgency of the symptoms becomes marked; the breathing more difficult, rapid and superficial; the poisonous influence of carbonic acid becomes manifest, and the extreme restlessness gives place to a semi-comotose condition. The face, lips and extremities, especially the finger tips, become cyanotic; the cough ceases; the pulse becomes exceedingly feeble; the right ventricle more and more distended from its burden; the breathing irregular and gasping; the eyes become staring and roll around. The temperature usually runs up very high and frequently reaches 108° F. before death; the bronchial râles become more liquid as the tubes fill with mucus, and finally tracheal râles (death rattle) announce the closing of the scene, the child drowning in its own secretions. Death may take place earlier in these symptoms from a fit of coughing or convulsions.

Again, death may result from pulmonary collapse. In these cases dyspnœa increases, the temperature falls rapidly, the cough lessens and finally ceases, the skin becomes cold and clammy and death takes place within a few hours.

The duration of fatal cases in the acute form of the disease may be from twenty hours to several days, the majority of deaths occurring between the third and eighth day.

In the sub-acute and chronic forms death is generally due to exhaustion, or tuberculosis.

DIFFERIANTIAL DIAGNOSIS.

Broncho-pneumonia may be confounded with the following diseases:

1. Acute bronchitis.
2. Lobar or croupous pheumonia.
3. Pleurisy.
4. Acquired pulmonary collapse.
5. Pulmonary tuberculosis.
6. Cerebro-spinal or tuberculous meningitis.

Simple bronchitis. Bronchitis of course always precedes broncho-pneumonia, but to determine whether the disease is one of acute bronchitis of the smaller tubes or broncho-pneumonia is no easy undertaking, in fact, often impossible. But it may be said, after Osler, "that if in convalesence from measles or whooping cough, the child has an accession of fever with cough, rapid pulse and rapid breathing, and if on auscultation fine râles are heard at the bases or widely spread throughout the lungs, even though neither consolidation nor blowing breathing can be detected, the diagnosis of broncho-pneumonia may safely be made."

Sometimes in cases of bronchitis we find on an evening visit that the cough is more frequent and painful, respiration more rapid, perhaps as high as 60 per minute, pulse 140 to 150, chest full of fine moist râles, and from these changes pronounce the case broncho-pneumonia, and calling next day find the little one sitting up in bed engaged with its play toys, as though nothing had been wrong. Such cases are not uncommon and teach us that the diagnosis of broncho-pneumonia should not be too hastily made.

Croupous pneumonia. With the exception of the pseudo-lobar form the diagnosis of broncho- from croupous pneumonia is not difficult. Broncho-pneumonia is more common in children under five years of age, though croupous pneumonia occurs more frequently than is generally supposed. Broncho-pneumonia is generally preceded by measles, whooping cough or ill health. Its onset is more insiduous, it is bilateral, while croupous pneumonia is generally unilateral. The physical signs of consolidation are very difficult to appreciate in the former, while in the latter they are, when once developed, quite characteristic, although often slow in developing. Chlorides are found in the urine in broncho-pneumonia, but are absent in croupous pneumonia. Broncho-pneumonia is of longer duration and recovery takes place more slowly.

Pleurisy. The diagnosis of broncho-pneumonia from pleurisy is less difficult than is croupous pneumonia.

During the early stage the pain is more severe in pleurisy, and the child's strength is not early depressed. Percussion on the affected side often increases the pain and on auscultation the characteristic pleuritic friction sound may be heard. Pleurisy is usually unilateral, while broncho pneumonia is bilateral. Later, in pleurisy when effusion takes place percussion reveals dullness at the extreme base, which as the fluid increases in amount extends upwards. The area of dullness may be altered by changing the position of the patient, and over this dullness breath and voice sounds are usually absent. Such physical signs are entirely distinct from those of broncho-pneumonia. In pleuretic effusions the needle may be used to make positive the diagnosis.

Acquired pulmonary collapse. Formerly lobular collapse was invariably mistaken for lobular or broncho-pneumonia. Pulmonary collapse frequently occurs during the course of broncho-pneumonia; but it may also occur as an independent condition and be confounded with broncho-pneumonia, in fact, their separation is beset with many difficulties. They are alike common in feeble and poorly nourished children, and also in being preceded by catarrhal inflammation of the bronchial mucous membrane, whooping cough, measles and other exhaustive diseases. The area of collapse being airless produces a less resonant note on percussion, and absent or faint breath sounds are heard on auscultation, or, as sometimes happens, broncho-vesicular breathing may be heard over these areas, which increases the difficulty of separating these two conditions. After the lobule has become collapsed, œdema usually occurs, which gives rise to numerous crepitant râles, and this serves to further deepen the mystery.

In severe collapse sinking of the intercostal spaces and the supra-clavicular regions and retraction of the lower part of the sternum are more marked than in broncho-pneumonia. Dyspnœa and deficient oxygenation of the blood comes on more suddenly in pulmonary collapse. Pulmonary collapse is not an inflammatory disease, as is broncho-pneumonia, and hence fever is absent, except what may be due to the preceding disease. Prostration is more sudden and progressive than in broncho-pneumonia. One noticeable feature of difference is that in acquired pulmonary collapse the physical signs are shifting. Areas which have all the characteristic signs of collapse may in a few hours be entirely free from all such physical signs. This is brought about by the removal of the plug of mucus, or whatever the cause of collapse, allowing the air to re-enter the lobule. Other lobules, which were a few hours previous free, are now found collapsed. This shifting character of the physical signs is the main point of difference between the two conditions.

Pulmonary tuberculosis. This is a very difficult question to decide and generally impossible. If there is a history of tuberculous parentage or tubercular glands or joints, the chances are in favor of a tuberculous broncho-pneumonia. If the disease exists in the apices it is suggestive of a tuberculous nature. If the patient be one of the colored race tuberculosis is probable. Emaciation is generally more rapid in tuberculosis; profuse sweats are also more common. If the sputum can be examined and tubercle bacilli found, the diagnosis is assured.

Cerebro-spinal or tuberculous meningitis. Cases of broncho-pneumonia associated with pseudo-meningitis are sometimes very difficult to diagnose from a true meningitis. In the pseudo-meningeal form of broncho-pneumonia the following condiions, which are characteristic of true meningitis, are absent:

1. Retraction of the abdomen (scaphoid abdomen).
2. Obstinate constipation.
3. "Trousseau's mark," "meningeal streak" or "tache spinale" as it is called, that is the appearance of a well marked blush which appears slowly along the line of gentle friction of the skin, and is due to dilatation of the vessels beneath, caused by a deranged function of the vaso-motor nerves.

COMPLICATIONS.

1. Pleurisy. Slight circumscribed plastic exudation on the surface of the pleura lining superficial areas of broncho-pneumonia is quite common, but a free serous effusion is somewhat rare, though sometimes, especially where measles preceded, effusion is present, which is more frequently purulent.
2. Catarrhal laryngitis. Varying degrees of laryngitis are quite common, especially when measles precede. It is apt to be accompanied by much spasm and stenosis of the larynx, which may cause considerable anxiety to eliminate the possibility of membrane being present.
3. Gastric and intestinal catarrh. These are perhaps the most important complications and are more prone to occur when the disease follows measles.
4. Convulsions.
5. Pulmonary collapse. Limited and scattered areas of lung may temporarily collapse during the course of broncho-pneumonia and give rise to sudden and depressing symptoms, but the cause is quickly overcome and the areas again receive the air when the symptoms suddenly disappear. Again this complication may speedily prove fatal.

SEQUELÆ.

1. Enlargement of the bronchial glands. This is the most important and frequent sequel and is more apt to follow the broncho-pneumonia of measles and whooping cough. The bronchial glands are the lymphatics that drain the lungs, and are situated at the roots of the lungs, particularly in the angle between the two bronchi, as they leave the trachea. After broncho-pneumonia the mouths of the lymphatic ducts, which open into the acini of the lungs, between the flattened epithelial cells which line their walls, are abnormally opened or disturbed. This allows morbid material to enter which is carried along the ducts to the glands, and there set up more or less irritation or inflammation with consequent enlargement.

To be able to recognize these enlarged glands is important. The most frequent indication of their presence, if they are large enough to produce symptoms, is a peculiar cough which is dry, loud and ringing in character. The recurrent laryngeal nerve may be pressed upon, which gives rise to a peculiar brassy cough. Sometimes a bronchus may be pressed upon to such an extent as to completely close its lumen, as in a case reported by J. Lewis Smith; or again, it may suppurate and perforate the bronchus, but these are very rare occurrences.

2. Broncho-pneumonia sometimes leaves its subjects in a very vulnerable state. This condition is associated with marked anæmia and debility, and malassimulation. It is more apt to result if there has been severe intestinal or gastro-intestinal complication. There is a very high degree of susceptibility of the system to morbid influences, especially tuberculosis.

PROGNOSIS.

The prognosis of broncho-pneumonia is a most difficult problem. The disease must always be looked upon as one of the most treacherous to which child flesh is heir. We often meet cases where the prospects seem bright, that in a few hours, very much to our surprise, suddenly collapse. On the other hand, in cases that seem to be the most desperate, and where all chances of recovery seem darkened or impossible, recovery takes place. It is in this disease that on the one hand the truth of the old saying, "Never dispair of a sick child" is shown, and on the other, we must never prophesy a complete recovery, no matter how slight the case may seem. We must bear in mind that deep seated consolidation may exist which cannot be detected, so that what may seem to be a slight case, so far as physical signs are concerned, may be severe and liable to terminate in death.

The following circumstances influence the prognosis:

(1) The danger from broncho-pneumonia grows greater in proportion to the infancy of the child. The younger the child the smaller the chances of recovery. Under six months few recover; from six months to one year from 40 to 50 per cent. die.

(2) The associated or preceding disease also influences the prognosis. It is less dangerous when it follows measles than when it follows whooping cough or diphtheria. The death rate is very high when it follows whooping cough.

(3) The acute form is less dangerous than the more protracted or chronic form.

(4) The danger is in direct proportion to the extent of the lung involved. The more lung consolidated the greater the danger to life.

(5) A diminution of the powers of resistance of the patient increases the danger to life. This is an important factor, particularly as the nutrient blood itself is chemically changed by the presence of non-eliminated carbonic acid, and hence the process of nutrition must be materially interfered with. Therefore, in children that were originally feeble as a result of any constitutional condition, or those that have undergone any severe acute infection, the disease runs a much more pernicious course, and they are liable to far greater danger than those who are strong. The same is true of very fat children, because the volume of blood in them is less in proportion to the weight of the body than in well nourished children who are not fat.

(6) A feeble, frequent pulse; a pulse-respiration ratio of one to one, or one to one and one-half; diminution of the power to cough; and restlessness giving place to stupor or delirium, are all unfavorable symptoms. The occurrence of convulsions late in the disease is nearly always fatal.

PROPHYLAXIS.

This naturally arranges itself under two heads:

(1) Prevention of "bronchial catarrh," and

(2) The proper care of catarrhal conditions of the bronchial tubes, when present, especially that occurring as a part of measles.

The best protection against "taking cold" consists in an intelligent care of the skin, clothing, house heating, ventilating, etc. Children should not be coddled on the one hand, nor made the victims of fanatical hardening process on the other. It becomes necessary, now and then, to warn mothers of the wealthier class against undue exposure of the surface of the body in following the dictates of fashion, or on the other hand against wrapping the little ones up like Esquimaux when the weather is not sufficiently cold.

In order to prevent broncho-pneumonia when bronchial catarrh is present, especially that of measles, we must pay strict attention to the surroundings. In measles the importance of the admission of pure air cannot be too strictly insisted upon; it is absolutely essential. *Foul air with measles is without exception the most prolific cause of broncho-pneumonia.* The belittling of measles is certainly too prevalent, not only among the laity, but likewise among physicians, and many lives are lost yearly from broncho-pneumonia complicating measles, where, had proper care been taken, such a complication would not have occurred. It is not the object of this paper to give the details of the care of measles, but too great emphasis cannot be laid upon the importance of insisting on the proper management of such cases.

TREATMENT.

There is as yet no specific treatment, but much may be done for the comfort and guidance of these little sufferers in their struggle for life. First and foremost is the hygienic management. The child should be placed in a good sized room, where there are ample facilities for admitting air and sun light. The cot or bed should not be placed against an outside wall, if the season be winter. Unnecessary furniture would better be removed. The clothing of the cot should be light, clean and warm; sheets may be discarded for soft flannel blankets. The child should be attired in a flannel night gown preferably of the "combination" variety. The bed clothing and night clothes should be kept clean and changed and aired daily.

The temperature of the room should be maintained day and night from 68° to 72° F. Free and constant ventilation should, above all other things be obtained and its maintenance be rigidly insisted upon. This is best accomplished by lowering a window from the top which will allow the free ingress of fresh air. If a fire place be in the room, and in working order, it is well to keep it burning, as it is one of the best means of ventilating and carrying off impure air. The air in the room may be kept moist to advantage, preferably with the steam of boiling lime water. The attendants on coming in from the outside air, if the weather be cold, should warm themselves before going near the patient. The physician should do likewise, and should warm his stethoscope and hands before examining the chest.

Attention to the countless little things which promote the comfort of the little one is most important, such as changing the child's position frequently, drying its skin with a soft warm towel, keeping the mouth clean, etc., or in other words "good nursing." In many places among the poor, such hygienic measures cannot be carried out as well as we would desire, but the best possible under the circumstances should be insisted upon, and we must always remember that medicine can never take the place of hygienic treatment.

Food. For those who are artificially fed, milk is the ideal food. It should be given with lime water. It is best to feed the child at regular intervals, say every two hours. Albumin water, made by mixing the whites of two eggs with a pint of water and adding a little salt, will be found very nourishing and may be given ice cold. Liquid beef peptonoids make a concentrated and nourishing food. It also has the advantage of containing in its composition a certain amount of alcohol; it may be administered on chopped ice. Older children should have in addition to milk animal broths. Cold water should be constantly on hand and the child encouraged to drink freely. Stimulants in severe cases should be given from the first, and good rye whiskey is one of the best forms to administer. It may be given in the egg albumin water, and its dose will vary with the age of the patient and severity of the disease.

Locally. In mild cases a well fitting cotton batten jacket, lined on the inside with cotton flannel, and on the outside with oil silk or oiled muslin will be sufficient. The chest may be first rubbed with some stimulating oil or liniment, such as ʒii oil of turpentine and ʒi of the stronger solution of ammonia, in ℥ii of soap liniment. In severe cases where the cough is painful there is nothing that will give the relief and satisfaction of the time honored hot flaxseed poultice.

Medicinal. As little medicine as possible should be given, and all medicines of a depressing nature avoided. The bowels may require to be moved at the onset, which may be done with small doses of calomel, but we must be careful of purgatives, especially in cases following measles, as they are apt to set up gastro-intestinal complications.

In the early stage if the cough is dry and the bronchitis troublesome, as indicated by a preponderance of dry râles, some alkaline cough mixture, as one or two grains of nitrate of potash, with ten or fifteen minims of syrup of ipecac, given in equal parts of liquor amonii acetatis and syrup or fluid extract of liquorice, to one teaspoonful, for a child two and a half or three years old. Such cough mixtures should be given freely diluted with water.

When the cough is loose and moist râles more abundant, the ammonium salts will be found more efficient.. Some prefer the chloride, others the carbonate. When the acute symptoms are present the carbonate is perhaps more indicated. This salt is not only an efficient expectorant, but also a valuable cardiac and respiratory stimulant, all of which actions are indicated in the treatment of broncho-pneumonia. It can be combined to advantage with vinegar of squills and given in the fluid extract of liquorice, which disguises its taste most efficiently. The dose will vary with the age; for a child fifteen months or two years of age, one grain of the carbonate with fifteen minims of of acetum scillæ given every two hours will generally suffice. Later in the disease the chloride may be substituted, which has an alterative effect and tends to lessen the secretions of the bronchial mucous membrane, and during its use digestion usually improves.

Strychnine is also a valuable respiratory stimulant, and heart and systemic tonic, and is of undoubted value. In desperate cases its judicious hypodermic use is superior to all other known remedies, and has many times turned what seemed a hopeless case to recovery. In all such cases it is the remedy *par excellence.*

Symptomatic treatment. Cough rarely requires treatment, and should not be stopped as it is the only way a child has of cleansing out its bronchial tubes and preventing collapse.

Pain. We must be guarded in giving opiates to allay pain. As a rule flaxseed poultices will generally be found sufficient; if not, compound tincture of camphor may be added to the cough mixture, or Dover's powder may be given.

Dyspnœa. If it is due to obstruction of the bronchial tubes from accumulated mucus, an emetic should be given. In weak and debilitated children these should be used cautiously. Ipecac is perhaps the safest and most frequently used emetic. In older and stronger children turpeth mineral by the mouth, or apomorphia hypodermically are recommended. When the dyspnœa comes in paroxysms, and is not due to obstruction of the bronchial tubes with mucus, there is no treatment equal to the hot bath. The temperature of the water should be about 100° F., and the child allowed to remain in the bath for ten or fifteen minutes, then wrapped in a woollen blanket.

Fever. As a rule children bear high temperatures without the rapid prostration observed in adults. Even a temperature of 104° or 105° F. does not always call for antipyretic drugs. The fever of broncho-pneumonia seldom calls for special treatment, but should it do so, there is nothing better than the general bath with water at 100° F. gradually lowered to 80° F. or lower. The bath may be repeated several times daily if required. The coal tar antipyretic drugs must be used with caution. The bath is much more to be preferred than dosing with antipyretic drugs, as it not only lowers the temperature effectively, but also acts as a general tonic, and tones up and refreshes the child, and is usually followed by refreshing sleep.

Collapse. This requires bold and energetic treatment, hypodermics of ether, brandy and strychnine. The latter may be added to the brandy or ether, whichever is chosen. A douche of cold water to the nape of the neck will usually cause violent inspiration followed by vigorous coughing, even though a high degree of carbonic acid poisoning be present.

Another way of treating these cases is by mouth-to-mouth inflation. When the breathing becomes improved the child may be wrapped in a sheet wrung out of hot mustard water, within a flannel blanket. Plenty of fresh air should be allowed. Some recommend the child being wrapped in a sheet wrung out of ice cold water, a flannel blanket on the outside, which stimulates the nervous system and improves very markedly the general condition.

Treatment of cerebral cases. In these cases the main remedies to rely upon are the hot bath, chloral by the rectum, or the bromides and hyoscyamus by the mouth.

Convalescence. Careful regulation of the feeding must be observed. If hypersecretion of the bronchial mucous membrane continues oil of turpentine will often be found beneficial, or Gardner's syrup of the hypophosphate of lime. Later, cod liver oil and iron will be found of service, but before these are given we must see that the digestive organs are able to take care of them. If not, they had better be preceded by a short course of muriatic or nitro-muriatic acid, with tincture of nux vomica in some of the vegetable bitters, as the infusion of columbo.

Cod liver oil may be used by inunctions in young infants to advantage. The syrup of the iodide of iron is perhaps the best iron preparation to use. If the bronchial glands are enlarged they are best treated with muriate of ammonia or syrup of hydriodic acid.

Caution should be exercised in guarding against exposure to cold and damp for a long time after apparent recovery has taken place. When able to be moved, a change of air is, above all things, the best, especially from the city to the country.

Dayton Building.

THE STATUS OF THE SURGERY OF THE GALL BLADDER, GALL DUCTS AND INTESTINE, DURING THE LAST DECADE, AND THE INFLUENCE OF THE MURPHY BUTTON ON THE SAME, TOGETHER WITH 150 CASES NOT YET REPORTED IN THE LITERATURE.—A CRITICAL STUDY.

By Adolfo Luria, Ph. D., M. D.

Chicago.

(*Continued from page 131.*)

VIII. It produces a linear cicatrix, thereby insuring a minimum of contraction. The experiments of Marwedel,[19] Chaput,[30] Villard,[25] Wegrad[35] and Forgue[29] on the lower animals, as well as the post mortem examinations conducted on human subjects by Quinn,[36] Ferrier,[37] v. Graff,[20] Barres and Robson[28] have clearly demonstrated that the anastomosis established by the method of the Murphy button shows no tendency whatever to cicatricial contraction. Abbé,[32] Bazy,[39] Keen[40] and Morton,[33] it is true, claim to have observed, in some instances, a certain degree of stenosis, but these cases are the exceptions to the rule, and may be regarded as curiosities due to contraction of the viscus, etc.

Chaput's[30] deductions in this respect are misleading because they are based on experiments on the cadaver, while in the living subject there can be no danger of obstruction from the button except where there already coëxists a pathological diminution of the intestinal calibre. There is however on record the case of F. Cauthorn,[41] in which the patient did well for two months after the operation, when all of a sudden he began to suffer from colicky pains and diarrhœa, which continued for a long time, till he had a perforation of the bowel; but these repeated attacks, so similar to intestinal obstruction, were a fair warning to liberate the button and to ward off the fatal termination.

In the case of Hoffman[42] the occlusion was due to anatomical anomalies which carried the patient off two hours after the operation.

Furthermore a histological examination of the newly formed opening of communication by Villard,[25] Frey,[18] Forgue[29] and Marwedel,[19] revealed such a uniformity of apposition of all the layers that the line of union was neither externally nor internally readily recognizable.

IX. Edge-to-edge union of the same intestinal coats. The button method, while as I have already said not an ideal one, has nevertheless proven in its ultimate attainments to be productive of ideal results, because through its medium for the first time in the history of intestinal surgery it was demonstrated that a perfect union from edge-to-edge, and of the same coat was not only a possibility, but a perfectly palpable reality. In this fact alone lies the whole secret of Murphy's matchless technique in his operations with the button, and till a far better method can be found his button method will stand rivalless among all devices ever proposed in intestinal surgery.

So then by this somewhat rapid review we see that the advantages Murphy claims for his anastomosis button are amply justified by the results obtained. We have also learned from experience that one of the many drawbacks of the suture method is the sloughing through of the bowel at the line of suture and its too rapid absorption, interrupting thereby the healing process or terminating abruptly by fatal issue resulting therefrom; such occurrences are forestalled by the button. In the case of Abbé,[43] sloughing of the bowel over the button did occur, but in this special case a large sized button of 1½ inch in diameter was used instead of the small sized ones, which would have caused no inconvenience whatever, as was proved by the first button from a former anastomosis which was resting in a loop close to the growth without causing any discomfort to the patient. The case of Zielewicz[44] needs no further comment. A patient who seven days after he had undergone a gastroenterostomy for carcinoma of the pylorus is allowed to eat half a pound of leberwurst, has sufficient cause in my opinion to rebel against such splendid dietetic treatment, and to take leave with a perforative peritonitis for fields where sausages have no weight and influence on the intestinal tract. In F. J. Shepard's[45] case the wall of the gall bladder was so friable that the button cut through it. There is also Richardson's[46] case on record, where a ring of necrotic mucous membrane was formed around the button, giving the stomach contents access to the peritoneum, causing thereby a fatal peritonitis. In Brenner's[47] case, a button size No. 3 was used, which tore through the duodenum. Borelius[48] reports a case where while the button was perfectly *in situ* and remained so, yet perforation took place on one side of the button and peritonitis ensued, and to complete our series there remains to be mentioned a case of Carpenter,[49] where the button sloughed through the abdominal incision.

In view of the forgoing reports, one is tempted to ask: Is the button *per se* not a source of danger? To a very limited degree the question must be answered in the affirmative. While the fine results obtained with it have clearly demonstrated its value in intestinal surgery, it is none the less equally true, that the button in itself, by being a voluminous, metal, foreign body, acts also as such, and may occasionally endanger in no low degree the life prospects of the patient. and this (a) while the button is *in situ*, (b) while the same is becoming liberated, and, finally, (c) during its wandering through the intestine.

Let us now consider the eventual dangers which possibly may befall the patient from the use of the button during the above named three phases, and analyze to what extent such dangers did manifest themselves clinically:

I. While the button is *in situ*. (a) Occlusion of the cylinder. Five cases are reported where the cylinder through which passed the ingesta between the stomach and intestine was occluded while the button was yet *in situ*; by grape seeds in the case of Villard,[25] by a plum stone, which he did not succeed in washing out previous to the operation as reported by Keen,[40] by fæcal masses, of which Abbé's[50] case is an illustration, where button anastomosis was effected between the ileum and colon. A larger sized button would according to Abbé's own opinion have saved in all probability the patient's life. The same unpleasant complication occurred in McDonald's[51] case, where the button was occluded by hard fæcal masses, as well as in J. Pick's case, where the central tube was blocked by a mass of hard fæces.

How are we to remedy such occurrences? And this in cases:

a. Of foreign bodies, and
b. Of fæcal masses.

As to (a) Villard[25] recommends thorough lavage of the stomach, before each gastroenterostomy, so as to insure its freedom from foreign bodies, or he uses a modification of Murphy's button, which differs from the original model in so far that its hollow cylinder is wider.

(b) It is a safe method and good practice too to administer liquid nourishment to the patient as soon as the effect of the anæsthetic has passed off, while the bowels should be made to move as soon as possible after the operation and frequent evacuations kept up.

(c) Too early escape of the gut from the compressed button. This is a very unpleasant complication, which usually brings with it an abrupt termination of the case, or at best is productive of a temporary fæcal fistula, according to Day[52] and Mayo Robson.[53] These complications were due:

(1) To a faulty compression of the buttons, as reported by Quénu,[36] Chaput[30] and Keen,[40] but this is only a technical objection which can be readily prevented by selecting buttons only of the best American make.

(2) Where the walls of the compressed parts in the button were of a different degree of thickness. As a result the thinner part became sooner necrotic than the thicker, as in Brenner's[47] case, so that under the influence of the button, which was still *in situ*, and the pressure of the ingesta, the agglutination process of the fresh serosa dissolves itself, as reported by Delorme.[54] This is the more readily accomplished after gastroenterostomies on account of the different position the intestine has to assume.

Murphy, therefore, wisely recommends, in order to counteract the tension produced by the gut, to apply some sutures of fixation between the stomach and the intestine, outside of the place of anastomosis. Quenu,[36] Chaput,[30] Villard,[25] Brenner[47] and v. Graff, in addition, recommend as very useful a suture of the serosa around the inserted button, to which Murphy takes exception, because it prolongs the duration of the operation.

(3) Gangrene. The fear advanced that gangrene might spread beyond the vascular line of the pressure atrophy is only imaginary, because it is an aseptic necrosis with which we have to deal here, and Murphy[76] himself in his classical paper on ileus, has demonstrated to what an extent it is permissible to resect or destroy the circulation in the mesentery without endangering the bowel or producing gangrene. Furthermore, the statistics of the cases by suture as well as by the anastomosis button show a very low rate, so that we may look upon it as a very unusual occurrence. Nevertheless, it has been produced by parts of the button, either inserted into the stomach or the lumen of the gut, but whenever gangrene was produced it was due either to pressure or tension on the walls of either the stomach or intestine, and this we cannot ascribe to the button method but to a faulty construction of the anastomosis button. Still in the cases recorded by Brenner,[47] Banks,[55] Barling,[56] Chaput,[30] Cripps,[57] Demons,[58] Graff,[20] Johns,[59] Rosenstein[60] and Zebewicz,[44] these authors claim that the button was of faultless make, and v. Graff[20] reports a case where gangrene was due to pressure of the lateral openings, which have to facilitate the flow of the secretions upon the intensely strained gut.

(4) Non-union. This is another rare complication, and wherever it occurred it was never attributable to the button but wholly and solely to infection.

It is a well established and known law in surgery that wherever non-union of severed parts takes place, whether this occurs in bony or muscular or cellular tissue, as a matter of necessity there must coëxist from some source an element of infection either before, during or after the time of operation, so that in all the cases where non-union was reported this complication is not to be attributed to the button method but solely to the infection, as non-union takes place everywhere and in every method, wherever the element of infection is allowed to play a rôle. It is rather a point which strongly impresses in favor of the button method, because by the same the time of operations is so greatly lessened and the danger of infection is thereby lessened to the same degree; consequently the danger of non-union becomes vastly minimized. Thus the case of Tscherning,[61] which ended fatally, is attributed to a suppuration in the retro-peritoneal tissue and not to the button, while in the case of C. Parkhill[62] the contents of the septic gall-bladder escaped during the operation into the peritoneum. Julius Rosenstein[63] also reports a case of non-union due to a circumscribed abscess around the seat of approximation; while the abscess was a circumscribed one, yet it is not clear whether the failure of union was due to a primary or secondary infection; it is, however, fair to presume that it was primary, as otherwise union would have been effected at least in some places.

Another interesting case of non-union is reported by Jones[64]. In contrast to the above referred to cases is the one reported by Barling[56], in which peritonitis existed already at the time of the operation, to which the patient succumbed, but at the post mortem examination it was found that union was going on satisfactorily.

We have till now considered the complications which may beset the patient while the button is still *in situ*. Let us now consider for a while those which may occur

II. When the button becomes liberated.

When the parts which are compressed by the button become necrosed without any complication, then the button by the peristaltic action of the intestine is naturally expected to be expelled *per anum*. The time thereby occupied varies a great deal, ranging from seven days to a couple of months; thus Meyer[17] observed its passage after 145 days, and Borelius[48] even after six months. We have also cases on record where the passage of the button either escaped discovery or where, up to the time of reporting the case, the button did not make its appearance at all; to the former class of cases belongs the one of Vander Veer,[65] who claims that the button was not found, but that on the nineteenth day three evacuations were not examined; to the latter group we may ascribe the cases reported by Swaine,[66] Monod,[67] Griffith,[68] Schede,[24] Lick,[69] Prince,[70] Carpenter,[71] Villard,[25] Morton,[33] Lane[72] and so on. In the case of Barling[56] the button did not pass, but could be easily detected by palpation, while in Bank's[55] case its position was ascertained by a skiagraph. In the latter cases, and especially when a gastro-enterostomy has been performed, we may surmise, with a fair degree of certainty, that the button has slipped into the stomach, as in two cases reported by Meyer,[17] while v. Graff,[20] and Quénu,[36] Van Arsdale,[73] Tscherning,[61] have also each one a new case to report, where the side-to-side or end-to-side anastomosis has been performed, the button has passed into the cæcum, according to Abbé, Barras and Morton.[33]

The slipping off of the button into the stomach is not followed as a rule by grave disturbances. Being a foreign body one would be inclined to augur for this complications and as sequelæ hemorrhage and ulceration at the seat of the pressure, but so far not one case is yet on record where hemorrhage or ulceration were due to the slipping off of the button into the stomach. We know even from Quenu[36] that in one of his cases the button was in the stomach for sixteen months, and Graff[20] reports one where it lay four and one-half months in the stomach without any ill results; on the other hand Meyer[17] saw very serious disturbances; the same manifested themselves in Graff's[20] three cases. To forstall this aggravation Murphy as well as W. Meyer recommends in cases of gastro-enterostomy to insert the gut into the posterior wall of the stomach, according to v. Hackers,[74] method, but twice a similar procedure has been used in pylorectomies, namely by van Arsdale[73] and von Graff,[20] and twice it failed in its purpose.

According to the examinations and measurements of Chaput,[30] either of the four sizes of the button may once in a while occlude more or less completely the lumen of the gut; especially is this true of the lower portion of the ileum and the valvula Bauhini, which occurrence may be largely productive of temporary phenomena of intestinal obstruction, such as colicky pains, vomiting and nausea as has repeatedly been reported by Meyer,[17] Monod,[67] Bush,[75] Murphy,[76] Mayo Robson,[53] Villard[25] and Barling[56].

Till now only one case is on record, namely one of Abbé's,[77] where complete intestinal obstruction has followed the use of the button. Another case is reported by v. Graff,[20] where after gastro-enterostomy, the button inserted completely occluded the lumen of the duodenum, so that the bile emptied itself backwards into the stomach; we may attribute this to the selection of a possibly too large button, but it may just as well be due to physiological conditions such as the flexures of the colon, or to pathological conditions of the bowel, as bands, loops, stenosis. Thus Bell[78] reports a case where the button was found free in the splenic flexure; from above the obstruction caused no trouble, but perforation took place just beyond the border of the button. Charles A. L. Reed, of Cincinnati, also reports a case of retention of the button at the splenic flexure of the colon, where it was retained by a band of adhesion and no obstruction followed. Bressler[79] also reports cases of arrest of the the button in its passage attributable to the forenamed conditions. At other times it was found to lie in the rectum. So in Lane's[80] case the button was removed from the rectum on the nineteenth day. In McGuire Stuart's[81] case the same was found in the rectum on the twenty second day, and so on. From the foregoing we learn that a digital exploration of the rectum should never be omitted whenever the expulsion of the button is retarded.

It now remains to consider the cases where two buttons were used at the same time and on the same patient. Of this group we have now only to record two cases of v. Graff,[20] then Murphy,[76] Glass,[82] R. R. Williams;[83] of these both cases of v. Graff eventuated in death; in one of the cases, four weeks after the operation, perforation took place at the two places of junction and both buttons were found in the rectum. In Glass' case the first button was voided on the fifth day, the second on the twenty-sixth, while in the case of R. R. Williams both buttons were voided on the eighteenth day with no unpleasant symptoms. To complete my series of operations where two buttons were used, it only remains to mention Richardson's[46] case, where two buttons were used on the same patient, but at different times. Both buttons never passed but were found later on at the autopsy to lie in the transverse colon.

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(*To be continued.*)

ELEMENTS OF PROGNOSIS IN ALBUMINURIA.*

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St. Paul.

Two theories have been held with respect to why albumin passes into the urine in disease: one, that normally water containing albumin filters through the glomerular tufts into the capsule and urinary tubules, and that the albumin is subsequently absorbed by the cells of the renal tubules; the other, that transudation from the glomerular tuft is not a mere filtration, but that the epithelial covering exercises a selective function, and, indeed, prevents the passage of albumin while allowing the water to pass.

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*Short abstract of a paper read before the Ramsey County Medical Society, February 22, 1897.

Experiments to determine which theory is the correct one are somewhat contradictory, but there is strong evidence in favor of the view that normally the glomeruli do not allow albumin to pass, and if this be accepted, albuminuria must be explained by lesions or functional disorders of the glomerular tuft, or of its epithelial covering. This is, indeed, the more generally received view; and it is more or less applicable to a great number of conditions under which albuminuria arises.

Gubler, Semmola and Robin hold that albuminuria, at least in its chronic forms, is the result of a change in the blood. Whether there be hyperalbuminosis, dyscrasia, or albuminuria by demineralization of phosphates, it is the blood that is first attacked by disease, the kidney not being involved until later on, when it lets pass not only the changed albumins, but also normal blood serum. Without contesting that in a great many cases the blood is the first to become diseased (infection, poisoning), it is yet to be shown that a kidney which remains healthy lets normal albumin pass.

All inflamed epithelia, without exception, exude greater or less quantities of albumin. The kidney, therefore, in adding albumin to its secretions, merely imitates the example of other inflamed organs.

From this point of view we may regard albumin in the urine in many cases of acute nephritis as simply an inflammatory product. In lesions which are degenerative rather than inflammatory, albumin is only present as a subsidiary phenomenon or does not exist (Arnozan).

The prognosis in so-called physiological albuminuria has been much discussed.

Three theories have been advanced in this connection. According to one of these, albumin enters into the composition of normal urine; according to another, albumin may make its appearance accidently in the urine without any implication of a morbid condition; according to the third theory, albuminuria is invariably pathological. Among the partisans of the first theory, we find the names of Kleugden, Senator and Postner. Modern physicians, however, almost unanimously repudiate it.

In the opinion of Capitan, Chateauborg, Leube, Finot and Grainger Stewart, albumin is not normally present in the urine, but may exist without detectable disease, and albuminuria may thus be ephemeral, accidental and physiological. Facts brought forward in support of this theory certainly seem to show that albuminuria is compatible with robust health, active life and hard work, but this does not show that it is a normal phenomenon. Our organs, or some of our functions, may undergo changes without our general health being influenced thereby; but that we fail to notice any disturbance does not necessarily imply that our condition is normal. Moreover, it would be necessary to keep patients affected with such albuminuria under observation for a long time, fifteen or twenty years, and show that the albumin had disappeared, or that the morbidity or mortality were not greater among them than among other subjects. Until this has been done, albuminuria must be considered a suspicious phenomenon, which in any event points to a defective renal function (Arnozan).

Talamon, in a paper on this subject last August read before the French Congress of Internal Medicine, began it with the dogmatic statement that "physiological albuminuria does not exist." So far as one is able to judge, the general trend of opinion is toward the view expressed by Prof. Crocq, of Brussels, before the same Congress, which was as follows: "I am inclined to think that the starting point of albuminuria is the same in all cases, viz: desquamation of the epithelium. Physiological albuminuria is therefore an impossibility; but the condition may be ephemeral if the lesion itself is transient, the desquamated epithelium being completely regenerated." It has recently been shown (*Gaz. degli Osp. e della Clin.*, Dec. 24), that bicycle riding determines the presence of albumin in the urine of a large proportion of riders. The urine of a large number of apparently healthy individuals was examined, first, before riding, when no albumin was present, and, second, after a run, when in so large a number as fifty per cent. abundant albumin was found together with tubal cylinders. This albuminuria was so marked that had a medical man been called upon to make an examination of any of these individuals after their ride, and had been unacquainted with the circumstances, he would have been justified in arriving at a diagnosis of chronic parenchymatous nephritis. In eight members of a bicycle club, tube casts of all kinds were found in abundance in all but two, with more or less albumin in all. Five healthy boys also showed albumin in the urine after riding. As many of the members of this Society ride the wheel, it is suggested that they examine their own urine before and after a long run. The conclusion arrived at by the writer from whom I have quoted, is that the frequent repetition of such experiences can scarcely fail to terminate in chronic nephritis sooner or later.

With regard to febrile, infective or toxic nephritis, it may be remarked that there are but few fevers that are not associated with at least ephemeral albuminuria. There seems to be a general agreement, however, to attach little or no unfavorable significance to this variety of albuminuria, and the immediate prognosis of infective nephritis is favorable. The kidney, however, sometimes receives therefrom a taint which persists long after the original infection has disappeared. According to Prof. Bouchard, the majority of infectious diseases determine nephritis, a microbe or several associated microbes acting directly on the kidney. Nephrites induced by the ordinary pyogenic germs is extensively encountered in surgical pyo-septicæmia, but when the latter is cured they disappear at once. In addition to the staphylococcus, pneumococcus and Eberth's bacillus, the streptococcus and bacterium coli play a very important role in the development of nephritis (Claudo, Halle).

Talamon points out that microbes act also by their toxins. This may be the case in diphtheria, tetanus and cholera. Who knows even whether the antitoxins do not produce the same effects as the toxins (as in the late albuminuria in diphtheria since the introduction of serum therapy)?

The writer next considered in much detail the quality of albumin as influencing prognosis. A urine poured over nitric acid which shows a distinct layer of uric acid above the albuminous ring, always denotes a comparatively mild albuminuria.

A pale urine of low specific gravity, deficient in coloring matters, copious in quantity, with much albumin in it, invariably indicates an advanced nephritis and implies a hopeless outlook. On the other hand, a highly-colored urine, normal or subnormal in quantity, with a normal or high specific gravity, indicates, as a rule, a favorable immediate prognosis.

Of all the factors with respect to prognosis in albuminuria the most important one perhaps is that which relates to the total quantity of urine passed. It is far more important to know the total quantity of urine passed per day than the amount of albumin contained in this urine.

In all forms of chronic albuminuria a tendency toward suppression of urine (anuria) is a danger signal of capital importance. In acute nephritis the gravity of the prognosis is directly proportional to the degree of anuria.

Cyclic albuminuria has of late attracted the attention of medical men. The albumin makes its appearance in the morning, increasing until five o'clock in the afternoon and disappearing more or less completely on the patient retiring for the night. In such cases if the patient keeps his bed during the day, there is no albuminuria, while getting up in the night provokes it. According to Marie the cause of this curious phenomenon is not the motion, but the upright position. While Pavy, Tiessier, Merley and others consider it a special disease, Oswald, Landi and Talamon hold that it is only a variety of Bright's disease. This intermittent albuminuria, however, is not always cyclic. A characteristic phenomenon on which Mare and Stilling much insist, is the influence of the upright position. From all I can gather from a small personal experience and an industrious search of literature of the subject, the trend of opinion is toward regarding cyclic albuminuria as a manifestation of slight nephritis, which may gradually pass into Bright's disease. Many excellent observers, however (Tiessier, Arnozan, Merley), contend that this slight nephritis is susceptible of being completely cured, spontaneous recovery even being frequently obtained. The prognosis, therefore, is not absolutely unfavorable, and recovery may be looked for when the disease is not of too long standing, when the albumin is not abundant, when the daily albuminuric period is of short duration, and when the neurasthenic symptoms are slight (Arnozan). The writer next considered the albuminuria of acute nephritis, of chronic hemorrhagic albuminuria, of that due to disturbances in the circulation of mechanical or nervous origin, and also the so-called episodical albuminuria. The prognosis of albuminuria as influenced by the age of the subject was next referred to, a patient 45 years old or over yielding a more gloomy prognosis than a younger subject because degenerative changes commence at this period of life.

Minimum albuminuria described especially by Talamon was most gone into; a commom characteristic is a small amount of albumin and continuity. It is frequently recovered from; at other times it precedes an attack of arthritis. The albuminuria of genuine Bright's disease was next considered at length. The duration of the disease is subject to wide variations, and may be surprisingly prolonged when proper care and treatment are adopted. The large white and albuminoid kidney causes death to its subjects in a much shorter time than does the small red or contracted kidney.

Bad symptoms are: a diminution in the amount of urine passed, a very low daily excretion of urea, the occurrence of uræmia, excessive dropsy, cardiac failure, and œdema of the lungs and glottis. In chronic interstitial nephritis while the prognosis is unfavorable, much improvement may take place, and life may be prolonged in some cases to an advanced age. The albuminuria due to auto-intoxication was next discussed, these cases being very numerous and due to a wide variety of causes. Bouchard regards a chief producing cause the defective working of the digestive apparatus, especially dilatation of the stomach. The albuminuria which frequently complicates diabetes was next touched upon, this complication being of decidedly bad augury.

Talamon states that among 100 tuberculous patients selected at random, at least one half present albumin in their urine. This author even inclines to the opinion that, at a given moment in the evolution of the disease, there is not a single tuberculous patient whose urine does not contain albumin. He remarks that the albuminuria supervenes as a result of digestive, hepatic or other forms of auto-intoxication, due to the action of tuberculin producing renal congestion by elimination of exaggerated quantities of toxic substances. This author remarks that there are three principal forms of tubercular albuminuria, viz: the purulent, the continuous hemorrhagic and the polyuric. "The prognosis of all three, especially the second which is rapidly fatal, is peculiarly gloomy. The first indicates a suppurative inflammation which may be due to multiple causes; the second is the sign of subacute diffuse nephritis with extensive fatty degeneration of the epithelium; the third shows the existence of lardaceous degeneration of the renal arterioles."

Owing to the efficacy of treatment, the prognosis of syphilitic albuminuria is said to be rather favorable. According to Prof. Lancereaux, recovery may be absolute, but is usually only relative, the albuminuria persisting and passing into late syphilitic albuminuria with renal, atrophy and lardaceous changes in the walls of the blood vessels.

Both cardiac and broncho-pulmonary albuminuria furnish a very gloomy prognosis. With regard to the albuminuria of gout, it generally shows itself in one of two forms: (1) persons affected with so-called azoturic or lithæmic gout, and (2) those having genuine gouty arthritis who pass pale urine, low in specific gravity, poor in coloring matter, and rather copious in quantity. The prognosis in the latter variety is bad; in the lithæmic variety generally good. The last proposition, however, does not always hold good.

Dr. Jones said that owing to limitations of time he was compelled to leave out of consideration several well known varieties of albuminuria, such for example as that of lead poisoning, of anæmia, of circulatory and nervous asthenia, and also the albuminuria of pregnant women. He closed his paper with a consideration of the curious condition known as hereditary albuminuria. He quoted from Lecroché, Dickinson and Talamon who have reported cases in which Bright's disease was directly transmitted from parent to child. Moussons, Cassaet and Chambertent have carefully investigated this subject, and have shown beyond all doubt that children born of albuminuric mothers presented precisely the same lesions of their kidneys as were present in the kidneys of their mothers. Cassaet states that in five infants, who died shortly after having been born of eclamptic mothers, he invariably found lesions identical with those presented by their mothers. Auderbert, who subsequently reinvestigated this subject, confirmed, in every particular, the findings of Dr. Cassaet. In the opinion of Talamon, a large proportion of cases of so-called functional albuminuria (already discussed in this paper) occurring at the time of adolescence, are attributable to nothing else than heredity.

"This hereditary albuminuria of new-born infants which is sometimes ephemeral, may prepare the way for the subsequent development of infective nephritis" (Arnozan).

After a struggle of many years Wisconsin has at least succeeded in passing a medical-practice act similar to that in force in Minnesota.

HOSPITAL AND CLINICAL MEMORANDA.

A FEW CASES OF SERIOUS DISEASE OF THE FUNDUS IN WHICH REMARKABLE IMPROVEMENT (POSSIBLY TEMPORARY) FOLLOWED THE USE OF MERCURIAL INUNCTIONS AND IODIDES.

My object in presenting these few cases, from out of a limited number, is to illustrate:

First. That in certain cases of impaired vision due to gross lesions in the fundus, it is possible to obtain marked improvement in vision, possibly temporary (yet not necessarily so in all cases), in character; and,

Second. That it is good practice to advise patients (in whom the lesions are not of very long standing) to try, for at least a brief period, the power of mercurial inunctions and iodides, rather than to turn them, at once, away from our offices as incurable, and beyond the possibility of deriving any benefit.

These remarks apply more particularly to recent changes in the optic nerve and choroid. It is manifestly unreasonable to expect improvement in cases of extreme degeneration of the nerve fibres, or long standing and completely destructive changes in the choroid. And yet it is most surprising to find in a few cases where atrophic signs are visible, but recent, and with marked decrease in the visual power, as well as in certain cases of severe involvement of the perimacular region from choroiditis. to observe what noticeable improvement will follow the administration of the remedies spoken of. The only explanation I can suggest to account for the improvement, is that the absorption of organized bands of exudate releases the structure from pressure and thus permits partial, or possibly complete and permanent restoration of function, depending upon the extent of the injury already suffered by them. The amount of central vision remaining when a patient presents himself is not a reliable indication of the chances for visual improvement, since serious harm may already be done to all the fibres but those supplying the macular region, and even these involved. Examination of the entire visual field is a better index. If improvement follows in but a few out of the many, even then, surely "the game is worth the candle." I prefer inunction to other means of administering mercury in these cases, and give liberal doses of the iodides. The fact that in a certain number and class of cases we do get improvement should not alter the giving of a most unfavorable prognosis, as heretofore. Briefly, the few cases I desire to present are as follows:

Case I. Mrs. M. D. R., æt. 46, white. Consulted me May 3, 1895, at the advice of Dr. J. W. Bell. She had noticed a beginning impairment of vision three years ago. This was very gradual. Lately she has noticed more impairment. Has grey atrophy of both disks, particularly marked in the right; no other changes in fundus. Her vision in the right eye equalled 6 30 and in the left 6 15. I placed her upon inunctions of mercurial ointment, and administered thirty grains of iodide of potassium three times daily. Two months later vision in the right eye was 6 22, left 6·6. This has remained so without noticeable change in the fundus for almost two years.

Case II. C. J. H., æt. 46, white. This man, whose occupation has been that of a brass moulder for twenty-seven years, consulted me on May 6, 1896. The fumes of the phosphorus used in the process greatly irritated his eyes. He has noticed that the vision in his left eye was failing for about three weeks. Vision now is, in right eye 6 4, in left 6-15. Has vitreous opacities in the left eye, but no marked changes in the right. Under treatment as used in the preceding case the vision in the left eye equaled 6 6 in less than seven weeks. The opacities were present but not so marked as previously. After almost one year, the vision is still 6 6.

Case III. J. L. F., æt. 40, white. Consulted me Sept. 18, 1894. A very exaggerated case of choroiditis. Both fundi almost entirely involved from the disk to the ora serrata. He had vision in right eye of counting fingers at six feet, and in left could count fingers at fifteen feet. I gave the man directions for using the inunctions and placed him upon twenty grains of iodide three times a day. When he returned upon Dec. 7, about three months later, I was astonished to find the vision in right eye equalled 6·45, and in the left 6·12. I stopped this plan of treatment and gave him phospho albumen, and continued this until March 10, 1895, when his vision in the right eye equalled 6-30, and the left eye 6 5. This case is truly a remarkable one. There was some slight clearing up of the patches of more recent exudate, but the changes ophthalmoscopically were not very marked, and yet there was most unusual visual improvement. In this case the central vision alone was improved, that is to any extent, the field being contracted greatly at the beginning and remaining so. I saw the man in the fall of 1895 and the vision was the same as when treated in March.

As to how long these beneficial results may last, I am not prepared to state. Even though it should prove but temporary, for a few years, it is a great deal to the patient. These few cases are, of course, happy results out of many failures, yet, surely they are enough to show that we should give these unfortunates a trial.

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Parisian Hospitals.—The Paris correspondent of the *Cincinnati Lancet-Clinic*, writing of the hospitals in that city says:

Another interesting charity in the hospital line is the Hospice des Enfans Trouves. A Parisian once, after a very merry champagne dinner entered a fiacre, and to the inquiry of the coachman as to where he should drive him, replied: "To the Devil." The coachman started off at a rapid rate, as if he knew where he was going, and after some time stopped at the corner of a street, wakened up his passenger and demanded of him: "What number, Monsieur?" The gentlemen, rousing up, saw inscribed on the wall, "Rue de Enfer"—"Hell street." Here is situated the hospital for the little ones, who are always described as coming from Heaven. The "Tour" was one of the most interesting old sights about this place. It was an unpretentious piece of wood in the wall, which, on being turned, presents a cushion of straw, where the poor mothers of Paris, after nightfall, deposited their infants, turned the wooden arrangement, placing the child on the inside of the wall, rang a bell and passed on. These children, as rapidly as possible after being received, are sent out to nurse among the peasantry. Often a mother who has thus desertnd her child makes application as wet nurse, and receives a child, possibly her own, and is paid a small sum for its care. Some touching, some amusing, sights are seen among these deserted waifs of humanity; in one room was a tray or box containing a dozen babies a few days old packed together like sardines, which were crying and yelling to their hearts' content, not appearing in the least to discommode or distress the attendants.

In a discussion of appendicitis in the Societe de Chirurgie, of Paris, Tuffier stated that he had operated upon fifty-four cases of appendicitis, and that most frequently the appendix was permeable. He is convinced, in accordance with Brun and Jalaguier, that inflammation of the appendix is merely a localization of an enteritis, due to the fact that the shape and structure of this organ form conditions especially favorable to its perforation. Like all the mucomembranous canals, the cæcal appendix is infected through the mucous membrane, and afterward the subjacent layers become inflamed, when there results an interstitial parenchymatous appendicitis. This finally causes a more or less pronounced retraction of the walls, coinciding with corresponding changes in the mucous membrane, to which is due the consequent narrowing and sometimes even complete obliteration of the appendix. Under these conditions we may observe all the symptoms common to obliteration of the excretory canals in general (whether the Fallopian tubes, the ureter, or the ductus choledochus canal), and which manifest themselves whenever there is retention of the products of secretion or of foreign bodies.—*Univ. Med. Jour.*

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THE SIGNIFICANCE OF SUDDEN ACUTE ABDOMINAL PAIN.

The exploratory abdominal incision has taught us much about obscure points in the surgery of that region, and among other things has let in a flood of light upon the causes of the pain that is such a frequent and important feature of diseases of the abdominal viscera. If at the present day in the light of all this recently acquired knowledge discouragement comes sometimes because of a mistaken diagnosis of an abdominal affection, what must have been the condition of things before the new era in surgery allowed the peritoneal cavity to be opened with impunity? The ignorance of that time seems almost like that of the dark ages; "inflammation of the bowels" was a sort of blanket diagnosis applied to a variety of affections very different in their character and indications for treatment, and diseases of the abdomen were considered entirely within the province of the physician, matters with which the surgeon had little or nothing to do.

The rapidly acquired knowledge of this subject needs constant revision, and an excellent study of the significance of sudden acute abdominal pain has lately been made in an article by Dr. Byron Robinson, who for the purpose of learning how best to interpret this symptom, investigates first its location. He says that there are three principal localities from which the pain arises, viz: the pelvis, the region of the cæcum and that of the gall bladder. As a rule acute abdominal pain is referred by the patient to the region of the umbilicus, at least at first, and particularly when not associated with localized tenderness, and it is this that often makes the differential diagnosis difficult at the outset in an attack, for it is only when localized pain upon pressure begins to appear that a distinction can be made among several forms of disease attended with the general symptom of pain. In addition to the pain elicited upon pressure, another valuable localizing symptom is rigidity of the abdominal muscles, a general symptom in general peritonitis but a local one where the affected surface is limited. This rigidity is a reflex phenomenon and serves the purpose of protecting and keeping at rest the organs in which the pathological process is going on. In some cases hyperæsthesia of the skin over the affected area is to be found in addition to the muscular rigidity, but this is not to be relied upon.

The disease most frequently met with in the ileocæcal region as the cause of sudden acute abdominal pain is of course appendicitis. In the regions of the gall bladder the passage of gall stones is the frequent cause, and in the pelvis the rupture of an ectopic gestation is most likely to give rise to the pain. Besides these the affections that are common causes of the symptoms are intestinal obstruction, the passage of a renal calculus and movable kidney. The last named trouble should by no means be forgotten, although it is only lately that any significance has been attached to it as a cause of serious symptoms.

The character of acute abdominal pain is unfortunately seldom such as to aid in making a diagnosis of its origin. The difference noted is usually in the degree rather than in the nature of the pain, although in a general way a distinction is to be made between the paroxysmal and periodic pain of strangulation of the bowels and the sudden, acute, lancinating and continuous pain of a perforation of the digestive tube, the pain in this case announcing the establishment of a general peritonitis.

The want of a guide from the character of the pain gives added value to other aids which must be called in to help in the diagnosis. Mention has already been made of the location of the pain by the sensations of the patient, by the touch, by the rigidity of the muscles and by the hyperæsthesia of the skin. An additional point may be gained by applying the doctrine of probabilities and taking into account the age, sex and previous history of the patient. For instance, sudden, acute abdominal pain in an infant or young child will probably be due to an invagination of the bowel. This will be all the more probable if the intermittent, colicky nature of the pain can be detected, and the appearance of blood in the stools will make the diagnosis certain. It is to be remembered that shock is quite conspicuous in these cases and that the evidences of acute pain may be masked by it after the onset of the attack. Abdominal tumor is often wanting in this affection.

In boys or young men, sudden, acute abdominal pain will probably be due to appendicitis. In women, during the child-bearing age, the rupture of an ectopic gestation must be one of the possible causes for consideration. But, with all the aids he can bring to bear upon the diagnosis the physician will too frequently find himself confronted by an attack of pain which he cannot explain. Fortunately in these days he has one thing to fall back upon that seldom fails to clear up the case, that is the exploratory abdominal incision. Given a case that is at once grave and obscure, and the exploratory incision is imperatively demanded, *provided it can be made by an expert.* Operation by the inexperienced man is little, if any, to be preferred to expectant medical treatment, for although the danger from the operation, *per se*, when made by a man of moderate ability, is undoubtedly less than the danger from the disease, it must be remembered that the condition present is often one that can be detected only by an eye and touch that have had long training in the work, and that the necessary operation can be successful only in hands skilled by long practice.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

BURNSIDE FOSTER, M. D., SECRETARY.

REGULAR MEETING, FEBRUARY 22, 1897. The President, Dr. J. W. CHAMBERLIN, in the chair.

Dr. TALBOT JONES read a paper entitled

ELEMENTS OF PROGNOSIS IN ALBUMINURIA.

See page 151.

Dr. J. L. ROTHROCK: This is a most important subject, as we are all interested in knowing what importance to attach to a given case of albuminuria. I desire to call attention to one form of albuminuria not mentioned by Dr. JONES, namely, that form which occurs in connection with many crystals of calcic oxalate in the urine. The cause of the albuminuria in these cases is doubtful, but the prognosis is usually good. The not infrequent occurrence of albuminuria in syphilis is also of interest and importance. When occurring early it is usually but temporary and not of grave significance; but when occurring late it usually indicates a severe syphilis and is of a particularly serious import when associated with hyaline or waxy casts. The albuminuria of pregnancy occurs under three conditions: (1) chronic nephritis, (2) beginning nephritis, or (3) the so called kidney of pregnancy. In the latter case it usually clears up after confinement. In a case recently under my care the albumen appeared six weeks before confinement, and in spite of the fact that severe convulsions occurred forty-eight hours after delivery, the albumen disappeared in two weeks and the patient made a good recovery.

I do not wish to be understood as stating that albuminuria is necessarily associated with eclampsia, experience having shown that eclampsia may occur in patients who have not suffered from albuminuria, and on the other hand, many cases of albuminuria resulting from actual nephritis escape eclampsia.

Most recent writers state that albuminuria occurring in pregnancies unattended by evidences of nephritis is of good prognosis and are inclined to speak lightly of it. I have cited this case to impress upon the Society the necessity of close observation of such cases, and believe that the albuminuria stands as a danger signal which should not be passed unheeded, and that while it may not cause the eclampsia, it often points, as it did in this case, to agents at work in the system which do produce it.

Dr. E. BOECKMANN read a paper entitled

PRACTICAL URINALYSIS. HÆMATURIA—HÆMOGLOBINURIA.

MISCELLANY.

NATIONAL CONFEDERATION OF STATE MEDICAL EXAMINING AND LICENSING BOARDS.

The seventh annual meeting of this Confederation will be held in the small banquet hall of Hotel Walton, at Philadelphia, Monday, May 31, 1897, at 10 o'clock, A. M.

The object of the confederation is to consider questions pertaining to state control in medicine and to compare methods in vogue in the several states; the collection and dissemination of information relating to medical education, and to consider propositions that have for their purpose advancement of the standards in the United States. A cordial invitation is extended to all members and ex-members of state medical examining boards, and to physicians, sanitarians and educators who are friendly to the objects named, to attend the meeting and participate in its proceedings.

By order of the Executive Council.
A. Walter Suiter, Sect'y
William Warren Potter, Pres't.

NOTES.

CLINICAL NOTES ON THE ANALGESIC EFFECT OF LACTOPHENIN.*

By Chas. S. Potts, M. D.,

Philadelphia.

Instructor in Nervous Diseases at the University of Pennsylvinia; Assistant Neurologist to the University Hospital.

Lactophenin, the most recently introduced of the coal-tar products having antipyretic and analgestic properties, while in use in Germany since 1894, in the literature of which place many favorable reports of its action are to be found, has apparently not become well known to the profession of this country.

Chemically it is a phenetidine derivative, containing lactic acid in place of the acetic acid constituent of phenacetin. It is but slightly soluble in water, and is practically tasteless.

The writer's experience has been limited to its action as an analgesic. The number of cases reported is not large, but still it is sufficient in number and variety to show that lactophenin is a valuable agent for the relief of pain.

Case I. was a man sixty-five years of age, who for some time had been a sufferer from neuralgia involving the trigeminal nerve. By the use of lactophenin in five-grain doses, four doses daily, the pain entirely disappeared in a couple of days.

Case II., a young man aged twenty-two had had constant pain over the left eye, with violent exacerbations in the afternoon, for two years past. He said that nothing he had tried had any effect. Lactophenin in seven grain doses every four hours relieved the pain, which, however, returned when the administration of the drug was stopped. The patient was permanently cured with large doses of quinine.

Case III.—Patrick S., aged twenty-seven, had been suffering for three days before coming to the clinic with a violent neuralgia affecting the branches of the trigeminus on the right side. He had a number of bad teeth. Three doses of eight grains each of lactophenin, taken every three hours, completely relieved the pain.

Case IV.—Eight grains every three hours were given to a woman suffering from neuralgia of the trigeminal nerve. The next day she reported the pain had ceased.

Case V.—A patient with neuralgia of the supraorbital branch of the ophthalmic nerve was given eight grains every three hours, for two days, without any beneficial results.

Case VI.—John D., aged thirty-five, for a year past had been troubled with a severe sciatica. Ten grains every four hours relieved the pain for a while, but it finally returned. All other modes of treatment have since been tried in this case without result.

Case VII.—Mrs. M. F., aged fifty, was given five grains every three hours for severe pain in the right side of the face and ear, due to an epithelioma of the larynx. This dose relieved the pain, but she complained that it made her sick at the stomach. The same dose of phenacetin was then tried, but it did not relieve the pain so well.

Case VIII.—H. S., aged sixty-four, complained of most intense continual pain involving the entire head. This was afterwards found to be due to an alveolar abscess. The patient also had interstitial nephritis. Lactophenin gr. iv, p. r. n., relieved the pain, although it was necessary finally to increase the dose to eight grains to obtain results.

Case IX.—Mrs. S., aged forty-five, has a family history of migraine on both sides, and has been subject to headache since a child. Her attacks begin with a feeling of chilliness, followed by severe shooting pains all over the body, this in turn being succeeded by violent headache of the ordinary migraine type. By taking four grains of lactophenin when she felt an attack coming, she was generally able to stop it. At times it was necessary to repeat the dose in an hour.

Case X.—Mrs. W., aged thirty. Family history of migraine on mother's side. Patient has had at-

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*From *The Therapeutic Gazette*, January, 1897.

tacks since she was sixteen years of age. Nothing except antipyrin ever had any influence in stopping an attack, until she was given five grains of lactophenin p. r. n. This, so far, has always aborted the attack.

Case XI.—John D., fifty-two years of age, gave a history of having been subject to muscular rheumatism, usually in the muscles of the back, for the past seven or eight years. Lactophenin, gr. x, was prescribed, to be taken when he felt the approach of an attack. One or two doses taken thus have always aborted the seizure.

Case XII.—Kate G., aged forty-five, had severe pains and stiffness in right sterno-mastoid muscle for two weeks. The muscle was also tender. Lactophenin, gr. x every four hours, was ordered. Three days later she reported herself very much better. At her third visit, five days after the first, she was entirely well.

Case XIII.—M. O'N., aged thirty-nine, a chronic sufferer from locomotor ataxia, complained very much of severe shooting pains in the chest and legs. He was ordered eight grains of lactophenin, to be taken every four hours. Three days later he reported that the pains had ceased. Since then (six months ago) he has been able to control the pain with this remedy.

Case XIV.—W. B., aged thirty-five, with locomotor ataxia; complained of severe darting pains in the legs. Lactophenin, gr. viii p. r. n., relieved the condition.

In addition to the above the remedy was also given to four victims of ordinary headache, who did not return and were presumably relieved.

It will be seen that the drug was administered to five cases of neuralgia involving the branches of the trigeminus, four of which were relieved; to one case of severe sciatica, that was benefited for a time; to two cases of severe reflex pain due to irritaive conditions elsewhere; to two cases of migraine, two of muscular rheumatism, two of characteristic pains of locomotor ataxia, all of whom received benefit from the drug; and to four cases of simple headache presumably benefited.

Of the fourteen cases that we have been able to follow only one (Case V.) entirely failed to be benefited.

In an outdoor clinic, of course, it is not possible to study the influence of the drug upon physiological functions of the body, but it will be noticed that the lactophenin was administered freely to patients of all ages and conditions, and in none, excepting Case VII. (who said it caused disturbance of the stomach), were any bad or unpleasant effects noted or complained of. In one case (Case VII.) phenacetin failed where lactophenin succeeded. It would thus seem safe to say that lactophenin is a safe and efficient agent for the relief of pain.

HÆMATHERAPY: ITS PHYSIOLOGICAL BASIS.

Hæmatherapy, as the name imports, is a system of treatment by supplied blood. Its corner stone —and the corner stone of all modern physiology —is the antique proposition that "The Blood is the Life;" that proposition having been rehabilitated in scientific form by medical investigations of the blood cells or corpuscles with their vital powers and functions, as the solitary fount of that mysterious force called Life, so far as it is now possible to trace it towards its Inscrutable Source.

In the words of Sir William Hunter, the blood is "a highly organized living tissue;" unlike all other organs, not only living, but lifegiving, a loose tissue, as a concourse of organized corpuscles in a nutritious fluid; but none the less a coherent and constant unit, though in perpetual flux and change like other organs, only changing more rapidly and freely by reason of its all-distributive function; incomparably the most active as well as essential organ in the body, carrying vitality and vitalized sustenance to every cell of brain, nerve, muscle, bone or organ in the system.

The production of blood, then, is nothing more or less than the propagation of life in its fundamental organic forms or units; a propagation, too, which is carried on entirely in and by the blood, as the only depositary of life, and therfore the only thing in Nature by which life is or can be propagated, or communicated from one organism to another. It is the all-in-all of Life, for which all else may be broadly considered as mechanism. So long as the organic mechanism is kept in good working order, with a proper supply of raw material, the blood, full-fed, full-celled, and pure, is able to convey vitality, vigor and nourishment, to every part; vitality and vigor for defence, and vitalized material for repair, in defiance of hostile influences within or without.

But if the conditions be otherwise, impoverishment of the blood results, internal debility ensues, and disease or disease germs meet with weak resistance. This condition may be transient. Or it may be constant in a degree not incompatible with a languid persistence of life; in which case, if some severe attack occurs, it is evident there can be no salvation in the effete organism, which has chronically demonstrated its incapacity to carry on the sustenance and the care of the blood, and thus to maintain, so to speak, the garrison of its own defence. The defeat of medicine, sudden or gradual, is then certain, unless some other and stronger organism can be made to contribute its vital fluid to meet the default of the failing organism of the patient. That ignominious defeat of medicine has been an invariable result in such cases, from the beginning of the world until recently, because medicine did not know that the blood of bullocks could be substituted in full force and virtue for that which was lacking in the blood vessels of the sick, the debilitated, and the dying. Hæmatherapy has now come into the world to change all that, and to give a new lease of life, in supplied blood, to most of those hitherto condemned to untimely death for want of that vital element. At present, the physician's most convenient source of supply for fresh unimpaired bullock's blood seems to be the conserve known as bovinine.

I GO A-FISHING.

"Trout-fishing is employment for all men of all minds," said the good Dr. Prime; and he tells of the wise and learned antiquarian (he might have been a physician) who was not sure whether his antiquarian researches or his fishing was the more remunerating, since each enriches mind and body, and gratifies the most refined tastes. The question may never be answered, but the time is at hand when we all want to take a turn at fishing. Where to go is the great question. The best fisherman we have ever known said to us the other day that he believed that the Omaha railroad would have been a straighter line, if its builders had not been fishermen; for, he said, they seemed determined to reach all the good trout streams in the Northwest, and he named over some of the brooks on which he has fished for many years, and all are reached by this railway. Not a few of them were familiar to us, and we can testify to the excellence of the fishing in them. First, of course, is the famous Brule; but we place above it the Marengo, which is reached from Pratt, where there are three other excellent streams. As a matter of fact, there is scarcely a station between Superior Junction and Duluth, on one branch, or Ashland, on the other, where there is not good fishing. At Hayward and Cable the bass and muscallonge fishing are unsurpassed, and near both places trout may be had.

We are glad to hear that the Omaha road will stock some of the streams and lakes on its line this year with trout and other fine fish. Such enterprise is highly commendable, and cannot fail to be profitable, for the number of people who take a good many outings with the rod, every season, is rapidly increasing.

We do not know whether the Passenger Dept. on the Omaha Line issues a special circular upon this subject, but we know they are most courteous in supplying information, and will use the telegraph freely to obtain information from their local men along the line, which is also very desirable when the weather is uncertain, in order to prevent disappointment to those who can spend only a day or two on a trip.

Dr. E. E. Reynolds, Rock Bluffs, Neb.: I use very successfully "Sander and Sons' Eucalyptol" in cases of diphtheritis, bronchitis and typhoid fever.

The new compound, Blennostasine, is one of the most valuable products yet discovered fof the treatment of affections characterized by catarrhal super-secretion. In the treatment of "colds," Blennostasine is particularly effective, and far superior to quinine and similar compounds. A dose of three or five grains given every hour will "break up" a severe cold in a very short time, arresting speedily the sneezing and mucous discharge.

For preventing accumulations of mucus in the bronchial tubes at night, Blennostasine may be given in doses of five grains at bed-time. A case is cited in the *New York Medical Journal*, of spasm of the glottis, in which the condition of the patient had become very alarming owing to the mucus which collected at night, and which was completely controlled by this drug.

The drying or blennostatic effect of this drug is most remarkable, and renders it of great value in the treatment of hay fever. If given frequently the symptoms are promptly relieved, and though recurrence may take place the next year, the usual attack may be averted if treatment is begun early. The contractile effect on the vaso-motor system of of the upper respiratory tract is at least as marked as that produced by belladonna, atropine and other compounds, whilst Blennostasine possesses the additional advantage of being absolutely non-toxic. It forms a perfect substitute for belladonna, etc., in hay fever, acute influenza, rhinitis, intermittent rhinorrhœa, laryngorrhœa and bronchorrhœa.

Blennostasine has also been found very beneficial by public speakers and singers who suffer from slight hoarseness and fulness at the root of the tongue, caused by accumulation of mucus and venous congestion in that region.

A PURE WATER.

Endorsed by Physicians.

The Indian Medical Springs water is a positive preventive for typhoid fever, if used exclusively. Also a cure for rheumatism, kidney disease, eczema and all of the allied diseases of the bladder and stomach. It acts especially upon the gastric juices of the stomach, aiding the assimilation of the food, and producing new blood, which no medicine will do.

It is of a superior character, and has no equal as a mineral water, and as such we recommend it to all readers who desire the best medicinal water in the world.

The Indian Medical Spring Water is sold as low as any other water. For prices, etc., call upon, or write to

THE INDIAN MEDICAL SPRING WATER CO.,
404 Masonic Temple, Minneapolis.

LECTURES AND ADDRESSES.

SPRAINS.

An Address Delivered before the Ramsey County Medical Society, January 25, 1897.

By Arthur J. Gillette, M. D.

President of the Society.

It is the usual custom of retiring presidents to prepare an address upon the history of medicine antedating even Hippocrates, and finding in the mythical story of Chiron and Æsculapius the germ that evolved the medical science of succeeding ages, giving to Apollo even a place in this evolution, relating how accused by Pluto of depopulating Hades, Æsculapius was slain by Zeus with a thunderbolt, but Apollo secured for him the Godhead.

Thus have we had mirrored for us a history of theory and practice, revealing its fluctuations from time to time as we have deteriorated or progressed.

Our heroes have been duly enthroned, and it has been demonstrated to the most pessimistic mind that the art of medicine has reached an almost exact science.

The history of the Society is also a frequent theme, yet for me to attempt an encomium of the Ramsey County Medical Society would be futile indeed, with the living presence of some of the members so intimately connected with its infancy, still the master minds, and the counselors of the more juvenile members.

These old wheel horses are not by any means in their dotage; their minds are as active and their memories as retentive as when this Society was first organized.

Presidents retiring from office have often given valuable advice as to improvements that might be made, comparing the past and present and drawing therefrom well grounded conclusions for the future.

The six members of the committee appointed at the beginning of the year to consider changes in the Constitution and By-laws have shown themselves eminently my peers in this respect, and the almost unanimous acceptance of their report testifies to the just appreciation of their labors.

Since these fields then are closed to me, my predecessors having made further consideration of these subjects superfluous, you will, I am sure, allow me to digress for a moment and take this opportunity to express to you my appreciation of the honor you conferred upon me when you made me your President. I thank you for making me the successor of men of such marked ability, and personally knowing each member, I realize the future of this organization and consider it a great privilege to have been permitted to serve you.

I have chosen for this evening the very homely subject of sprains, because I think it is of equal interest to all.

The general surgeon and general practitioner treat them, and the orthopœdist treats them if he gets a chance.

It has been said by quite a modern author that in all probality half the stiffened joints date their starting point from the occurrence of a sprain. The author evidently did not realize the tremendous proportion of joint diseases due to the bacilli of tuberculosis.

I will grant, however, that many times the bacilli of tuberculosis are engrafted upon the seat of some slight sprain, and one can readily understand that the longer that sprain continues the more likelihood there is of inoculation.

We see so many infirmities and deformities resulting from sprains improperly treated that this subject is worthy of more attention than it has yet received.

Few injuries are treated with so little concern as sprains. Wounds, fractures and dislocations occupy pages and pages in our text-books, while but a few pages are given to sprains. In one or two very recent surgeries the subject is not even indexed.

How seldom a case of sprain is shown to a medical class, yet the part injured is one of the most complicated and finely adjusted mechanisms of the body.

Bone structure is comparatively simple, and its function is merely the passive duty of support, and failure of union sometimes, but very rarely occurs.

It is common for the position of the broken ends to be faulty, resulting in some deformity, but there is very little loss of power, and the after trouble and inconvenience is of a temporary character. At the end of a few weeks or months the bone is as firm as ever.

As for wounds, they constitute the student's preliminary work.

Cases of fracture and dislocation are simple and definite in character; one case does not differ very materially from another.

An injury to a joint, on the other hand, is exceedingly complex. A joint must not only be as strong for support as the bones between which it lies, but must in addition be capable of executing rapid and often extensive movements.

Two, three or more bones may enter into its construction, and are held together by a capsule, which is strengthened by ligaments, within which is contained a synovial fluid for the lubrication of the joint surface. Besides, we have blood vessels, nerves, fibro-cartilage and bursæ.

Joints differ from each other, not only in their structure and action, but different kinds of tissue enter into their formation.

Swelling and pain are the most constant and unvarying symptoms.

Other joints should be examined, if one is called immediately after the injury, as the patient attracts your attention to the most painful one, and others are apt to be overlooked.

If the swelling is great and there is the slightest reason to confound it with fracture or dislocation, the patient should be etherized, especially in the case of children, and it is a special benefit in suspected Potts' or Colles' fractures, as these fractures do not always immediately assume their characteristics, and the symptoms of a sprain in this locality are very similar.

The swelling in sprains is scarcely alike in any two cases; when due to hemorrhage it takes place at once; again the swelling may come on gradually, within twelve or twenty-four hours, and be smooth and uniform owing to the effusion into the soft tissue as well as into the joint itself.

At times the swelling is more distinct over the course of the muscles and tendons, again the bursæ and tendon sheaths, in the neighborhood of the injury, are distended.

In hinge joints the mischief falls on the ligaments which oppose a twisting force; in ball and socket joints the muscles are the greatest sufferers.

Pain is the least definite of all symptoms, depending so much upon the disposition and character of the patient.

Some claim to be able to locate the exact parts injured—ligaments, tendons or synovial membrane—by the conduct of the patient and the sensations complained of, but this seems quite preposterous.

In muscular strains, however, a peculiar sensitiveness of the skin always exists, most marked over its attachment to the bones or tendons; in the knee the tender points are on either side of the patella; in the ankle usually in front of the malleoli.

Some of the conditions found in various sprains are hemorrhage into the synovial wall, the bursæ become painful and tender, roughened and irregular, and instead of assisting the free movement of one part over another they hinder it.

The bursal swellings are very perplexing. In many cases where there is a large cavity overlying a joint, it is very difficult to tell whether the fluid is really in the synovial sac of the joint or outside of it.

Not only the superficial layers but the intra-articular ligaments suffer as well.

On several occasions the knee has been opened and a displacement of the semilunar cartilages found.

On the under surface of each of the fingers is a plate of fibro-cartilage, similar in structure to the disks in the knee joint, and like them helping to deepen the socket in which the head of the bone rotates.

In wrenches, when the finger is forced backward, this plate of cartilage is torn from its attachment and slips between the bones.

The muscles also come in for their share of injury, varying from straining and tearing to extravasation of blood.

It often happens that fibres are torn across, while the dense unyielding sheath that surrounds them remains intact.

Riders' sprain is peculiar to horseback riding, and is due to the rupture of the tendon or tendons on the inner side of the thigh. It is caused by the semi-voluntary grip by which the rider secures his seat when his horse shies or bolts. Often a bone or bursæ form because of the constant irritation to which the muscles and tendons are subjected.

In lawn tennis leg a sharp pain in the calf of the leg is the first symptom. At first nothing can be seen, but a slight depression can sometimes be felt, and is very painful to the touch. Later on ecchymosis takes place.

Dislocation of the tendons and muscles is another division of sprains. Where they cross a joint or run over a process of bone encased in a delicate sheath, the sheath rarely escapes injury, varying from a bruise filled with extravasated blood to a tearing its entire length, and the tendon escapes and lies displaced among the tissues.

On the back both muscles and ligaments may be dislocated. The muscles are closely packed, but separated from each other by a fibrous tissue, which is dense and firm toward the ends but yielding at the centre. When the contraction is sudden or spasmodic, it sometimes happens that a tendon slips from its bed, tearing its fibrous sheath, and becomes displaced or dislocated.

There are one or two instances on record of the displacement of the sartorius muscle. One is the case of a man who was squatting on the floor in the position assumed by tailors.

The most common tendons to displace are the peronei; in fact, it is quite common.

One can readily see how a sudden twist or wrench of the ankle could easily twist the peroneus longus out of its bony groove and rupture its sheath.

Complete dislocation of the tendons of the back of the hand rarely happens, because of the direct direction they run.

I have at least two cases in which the long tendon of the biceps was displaced.

The presence of varicose veins always complicates very materially a sprain. Even the bones may be bruised, yet the injury come under the head of a so-called sprain.

The injuries and complications are immediately followed by hyperæmia. As soon as the bleeding is checked, the vessels all through the injured area dilate and their walls become laxed and softened.

The blood supply is immensely increased, a much larger amount of liquid plasma pours out through the walls into the surrounding tissue; all the interstices are filled with it and become distended more and more.

Natural spaces, such as tendon sheaths, bursæ and the synovial sacs of joints, all become distended.

The effusion being so great the joint swells up, the skin becomes tense and shining. From the way in which it is stretched, the skin becomes whiter than natural, the temperature when the hand is placed upon it greater than that of the corresponding point of the opposite limb.

All the conditions thus far enumerated, with their various complications, varying in different individuals, constitute what authors agree upon as sprains.

Evidently the treatment required should be much more varied than we have yet been taught. We all admit that there is something very unsatisfactory in our present method. In a large proportion of cases the measures adopted are altogether insufficient, while in others too severe and protracted.

So far as the hemorrhage is concerned it is evident that this must be checked at once, by pressure or elevation, or by more radical methods if necessary.

If, upon first seeing a case, there is a great deal of heat and swelling, cold applications should be used. The ice bag is by far the most satisfactory, as the cold is uniform and constant. If the heat and swelling continue for two, three or four days, hot applications should follow, but neither are of much service after they have been applied continuously for twenty-four or forty-eight hours.

Above all, the limb should be placed in a proper position, placed as particularly as one would for a fracture.

If the sprain is in the ankle, the foot should be placed at a right angle, and for two reasons: if the joint should become stiff, this is the position you would desire for it, and it is the best position for circulation. These reasons will hold good in all joint injuries.

If the injury is in the knee, it should be extended; if in the elbow, midway between supination and pronation, flexion and extension; if in the wrist, in a straight position.

It is hardly necessary to suggest the importance of discovering complications as soon after the injury as possible, thus being able to place the dislocated muscles, tendons and ligaments in as nearly a normal position as possible and securing them by some form of immobilized dressing.

Probably the easiest dressing for this is the plaster cast. As to the length of time for it to remain on one must be guided entirely by the conditions presented, the inclination being to continue immobilization much too long. From ten days to two weeks is usually a sufficient time, and only in very severe lacerations and tendon dislocations should it exceed six weeks.

A very simple and effectual means of support is the so-called Gibney's dressing for sprained ankles. It consists of applied straps of rubber adhesive plaster an inch in width and from twelve to eighteen inches in length over the part sprained, beginning back of the injury and aiming to leave the part of the foot not affected as well uncovered as possible, but reinforced well as the straps are applied under the malleolus or malleoli.

"The first strip for a sprain of the external malleolus is applied, beginning just above the ankle on the unaffected side of the foot, and endng on the affected side about half the way up the calf. This strip is usually alongside the tendo Achillis and makes firm support under the heel. The second strip starts on the inner side of the unaffected part of the foot, near the ball of the toe, comes around over the back of the heel, and ends about the base of the little toe. It crosses the first one just above the border of the heel. The third strip overlaps the first half way, the fourth the second, and so on until the part sprained is fully covered by this criss-cross strapping. A cheese cloth bandage is applied more with the idea of securing close adhesion of the plaster and is removed within twenty-four hours. As soon as the dressing is completed the stocking and boot should be applied. The patient is now ready to begin walking, and this should be insisted upon in the presence of the surgeon. Direct him, for instance, to walk about the room eight or ten times. At the end of a week it is well to remove the strips and reapply in the same manner as above. Two or three such dressings suffice to complete the cure." (Dennis' Surgery, Vol. II., page 362).

Adhesive straps are very useful in sprains about the knee and other joints. In sprains of the spinal column they are of great assistance.

Imperfect recoveries, however, are the basis of this article, and special attention is called to the treatment of these cases.

Forcible manipulation under an anæsthetic is rarely if ever necessary in chronic sprains.

As we look back over the literature and note how the "used to be sprains" were divided and subdivided, we can comprehend why so many of our older books of surgery recommend these radical measures.

Fractures, dislocations, rheumatoid arthritis, gout, and even tuberculous joints, must have been placed under the common head of sprains.

Is it any wonder that the natural bone setter held sway in those days, and that his results were so marvelous. Fortunately for the "bone setter," however, we have only his word for the results obtained. What must have been the result of forcible manipulation of tuberculous joints?

It is easy to conceive that in an injured knee joint, held in a flexed position, the ham string muscles might become contracted or there might be an occurrence of inflammatory exudate covering that portion of the articulation upon which no pressure has been brought to bear during this long period of flexion of the joint.

It might require considerable force to extend this limb, but such cases are rare indeed. A few repeated plaster casts at intervals of a week or two with gentle traction will soon overcome the deformity, and with far greater ease to the patient and less danger of serious injury to the soft parts.

A neuralgia that quite commonly attacks joints following an injury, occasions considerable loss of power, and seriously interfers with its freedom of action.

This affection may be readily recognized by the peculiar periodic character of the pain and the way it is limited to certain spots which correspond to the places where the nerve penetrates the fibrous capsule. The skin over them is exquisitely tender to the touch. The check of the joint is not nearly so abrubt as in simple sprains, and there is very little, if any, change in the joint outline. Rest, constitutional treatment and electricity are indicated. If in the knee joint there is thought to be a displacement of the semi-lunar cartilages, rest in the extended position for a number of weeks is certainly necessary.

Sprains of the back are very common and deserve a certain amount of consideration. We know its structure is exceedingly complicated, consisting of a number of separate joints of various sizes and shapes, each with its various joint structures, and in addition the spinal cord running in a canal nearly the whole of its length, giving off nerves which pass out on either side.

One of the most singular things in connection with the treatment of sprains of the back, is the way in which the joints themselves are overlooked, the muscles and ligamentous structures ignored. When there is an injury, it does not seem to count for much in the eyes of the surgeon, unless we find symptoms of the spinal cord being involved. In railway cases, especially if any serious result ensues, it must originate from the cord itself; little or no attention is paid to anything else.

It is difficult to see why the other structures should enjoy such immunity.

The vertebral column may be strained, the ligaments torn or stretched, the nerves bruised or crushed, the smaller joints between the ligaments twisted or wrenched, the muscles detached from their bed and torn across, or the fibrous sheaths which contain and help to secure the bones laid open and filled with blood.

In short, results of the most serious character are certainly not uncommon, and often leave lasting evidence of their existence, while the spinal cord itself escapes completely.

Such injuries require warmth, applied to the tender parts, hot water or vapor baths, friction, acupuncture, galvanism, massage and rest in bed during the acute stages.

Have you ever noticed that patients with sprains of the lower extremity always place the diseased limb at the greatest disadvantage in walking, giving it a wrench, a jolt and a jar, in the great hurry to again throw the weight on the sound limb?

Many of these cases are seen with greatly protracted disablement due to this very fact. They carry the limb perfectly rigid, every muscle held as tense as possible, then suddenly throw the weight forward. Is it any wonder they do not gain strength in the limb? Each attempt to walk is followed by pain and swelling, and discouraged they fail to make further effort.

When they step on their feet, instead of carrying the foot straight ahead they toe out as far as possible, and then, in this position, attempt to walk.

The ankle and knee being hinge joints, and having a motion of flexion and extension, would naturally be traumatized in its weakened condition by any attempt to get lateral motion. Then, too, one can readily see that the muscles cannot give the same support to the limb as when held in proper position.

Lack of confidence causes them to hold the muscles rigid, and the position assumed is most tiring and is a great strain, especially to muscles that have somewhat lost their strength by disease.

An attempt to walk carefully over an icy pavement makes one appreciate this condition. The fear of slipping makes one hold the muscles perfectly rigid, and after walking a few blocks we are exhausted and our muscles ache.

These, then, are some of the conditions that hamper patients with sprains of the lower limbs, and suggestions in this direction from the physician will be of great benefit.

In chronic sprains it is well for patients to begin using their limbs with the aid of crutches and thus gradually accustom them to normally resume their old functions.

Flat-foot or splay-foot is one of the very frequent results of injuries to the ankle joint. As it is not often noticed until after the patient begins to walk, possibly it is often produced by this extreme abduction of the foot, causing all of the weight to be borne by the medio-tarsal joint when the body is brought forward, necessitating the entire weight of the body upon this part of the foot held in this abnormal position, and this joint with the rolling of the foot, substituting this movement for the ankle joint.

Another condition which greatly retards walking, and which I have designated ligamentous relaxation, is one of the most frequent causes of repeated injuries to the same joint. Many cases give a history of a previous injury to the knee or ankle joint sustained months and even years previous to the one in question, and, by the way, these are the only joints affected by such conditions, because of their function of body support. In these cases there is extreme relaxation of the muscles and ligaments.

I have a number of such cases on record, and if you will allow me, I will cite one or two, as they are perfect illustrations of my meaning.

A guard in the Stillwater prison, something over a year prior to his visiting me, received a slight wrench of the knee joint. This was followed by the usual swelling, tenderness, effusion and painful joint movement. The knee was encased in a plaster cast, and there remained thoroughly immobilized for several months.

After the cast was removed any attempt at walking caused a recurrence of the same conditions and the joint would be again immobilized. When he consulted me I found I could make complete flexion and extension; there was extreme atrophy of the calf and thigh. The knee could be luxated forward, backward and laterally, though not completely, of course, and these movements were attended with slight pain. Complete inflammatory destruction or disorganization would at once be suggested, but the normal temperature, the patient's general condition, lack of local heat as the absence of other evidences of suppuration would contradict it.

Another case, similar in history, of nearly two years standing, was an ankle joint injury. The injury was followed by months and months of immobilization. When the case was referred to me, the ankle joint was so completely relaxed from lack of tonicity of ligaments and muscles about it that one might have diagnosed paralysis had it not been for the normal reflexes and sensations.

The motion was normal as long as the patient did not attempt locomotion; when he did, pain, tenderness and swelling were the result, and he was again placed upon crutches and his foot immobilized.

All of this is due to the long continued immobilization, interference with circulation and consequent feebleness of the muscular system.

In reality in sprains it is the muscular system that is at fault, for upon it depends the perfection of the joints and the strength and power of the ligaments.

In the first place the joints are weak and ligaments loose, because they have not been properly exercised, and the muscles are not equal to any amount of work. When a little extra labor falls on them, and only a very little is needed, the muscles become fatigued and the joints lose their support. Either the already enfeebled ligaments yield slowly and steadily, as ligaments always yield when exposed to any strain, or owing to some sudden slip the weight of the body falls on them before the muscles can save them, and another injury is the result.

Emphatically, the strengthening of the muscles and ligaments is the perfecting of joint support.

While a certain amount of rest is to be recommended, more permanent injury is caused by the injudicious use of the plaster of Paris dressings than benefit obtained by a judicious use of the same. Massage, electricity, passive motion and moderate use is the treatment under these conditions.

Before being able to get the patient to walk, it has been necessary in some instances of ligamentous relaxation to apply lateral uprights, jointed so as to allow normal anterio posterior movement, but checking lateral displacement.

Many times, when we think the joint proper is involved, it is simply thecitis, and we are often able to trace the tender tendon from one to six inches from the joint by its tenderness. In spare subjects the thickened condition of the sheath is plainly seen.

It is the ruptured condition of the sheath that causes the small cyst, better known as ganglion, and which was originally in connection with the sheath. It is possible for them to arise from other inflammations but they more frequently originate in strains.

They may, of course, be simple or compound, according to the number. Crushing or removing is easily accomplished; crushing in the simple form and excision in the compound ganglion.

This occasion offers the opportunity to censure the almost universal use of elastic bandages and stockings. They cannot possible increase the strength by improving the circulation, and are therefore useless and injurious in this direction; if they are employed for the swelling, they are thoroughly impracticable, for as they are used and the swelling reduced, the swelling and the elastic are acting in reverse ratio, for, of course, the elastic is becoming less elastic and the swelling less pronounced, and after the first twelve or twenty-four hours they are utterly useless. If the theory is correct that lack of repair is due to poor circulation no further argument is necessary to condemn them.

In all the literature at command not a single author is found who even so much as mentions the tincture of iodine, yet we seldom see a joint that has not been thoroughly painted and even blistered from the liberal use of it. Aside from its mental suggestion it is utterly useless.

Dry synovitis is where the fluid exuded is very small in quantity or may be altogether absent. It is characterized by creaking or grating as the surfaces move over each other. It may be but the faintest sensation of friction, only to be perceived by pressing the hand firmly on the part as if two smooth silken surfaces were being rubbed together, or it may be distinctly audible to those around. It is due to the flakes of fibrin which are greatly increased until they may appear as a continuous layer covering the articular surfaces and forming a deposit of varying thickness on the synovial membrane and cartilages. The fibrin thus thrown out shows a remarkable tendency towards organization. Often by joint movement they are drawn into shreds of unequal length and are adherent at one or both ends. They may become detached and present themselves in the form of many small bodies, known as loose bodies in the joint.

The strong faradic current seems to greatly stimulate the synovial membrane, and the hot and cold douche is of great benefit, but the treatment superior to all is massage.

Œdema often occurs in the lower limbs, especially after the application of plaster casts. It not only occurs after sprains, but fractures and even after protracted recumbency, and greatly retards strength and repair.

After the sudden relief of the limb from the pressure of bandages, or when the patient stands erect, there is a sudden increase of blood to the parts. Naturally the vessels are weak and yielding and become dilated, an engorgement of the vessels ensues, causing an increased transudation of the blood serum into the surrounding lymph spaces, peripheral vasó-motor paralysis from pressure is the result, and you have practically the same local pathological conditions to contend with that you have in œdema from other causes.

If we do not assist circulation by supporting the tissues by systematic bandaging, this condition will increase and it is most painful, resulting sometimes in ulcer.

If we wait for nature to restore proper circulation, it may take months. I have two cases on record where it has existed for years. One can readily see that the longer it exists the more permanent will be the interference of the functions of the vessels and the more organic the condition. Systematic bandaging is indicated. Simple elevation will not do, for as soon as the patient begins to walk, the swelling again returns and we have œdema to again contend with. The silk elastic stocking is often applied, but the same objections offered before are applicable here. Frequent reference has been made to massage, but it should be understood not in the ordinary acceptance of the term, which seems to be a heterogeneous conglomeration of rotary leg pulling and pummeling, and the thousand and one useless manipulations that encumber its practice.

It does not mean passive motion or rough manipulation, but is systematic, gentle stroking, kneading, friction or percussion.

Briefly, kneading is made by alternate movements of the thumbs or hands, usually varied by squeezing, pinching, rolling or twisting.

The general effect upon all the tissues is increased metabolism and asorption of the diseased products.

Frictions are circular manipulations made by the tips of the fingers, by the thumbs or by the hand. Percussion is made by the flat hand, the fist, the ulnar border of the hand, called hacking, or the tips of the fingers. The physiological effect is to stimulate the muscles, nerves, skin, etc.

This description is, roughly speaking, only the main movements, these being again divided into various minor subdivisions.

It is of the greatest importance that the masseur should have a good knowledge of anatomy, physiology and physics, and have been propery instructed in the various movements.

Massage has suffered the fate of other valuable discoveries that have received an impetus from the profession. I fear many have lost their respect for this very important adjuvant because of its abuse by quacks.

I regret that he English literature offers so little upon this subject.

A very able and scientific article by Dr. Haldor Snévé, published in the NORTHWESTERN LANCET of January 15, 1896, has given me a much more comprehensive view of massage. It has taught me to appreciate more fully its usefulness in many forms of impaired circulation and muscular debility.

One more phase of sprains, and a very important one too, is the disastrous mental impressions so often encountered.

All of the conditions thus far enumerated in connection with sprains have visible, external manifestations, appreciable to the patient. Any of these conditions are intimations for auto-suggestion or the paralysis of an idea. These functional disorders are usually termed hysterical and are referred to as neuro-mimetic, terms which are misleading. The common usage of the first has become an expression of opprobium, and the second by its derivation suggests mimicry.

However, they exist without deceit, but without any manifestation of mimicry, intentional or unconscious.

A striking illustration is a case brought to St. Joseph's Hospital from a neighboring town. Eight months prior to her admittance she fell on the ice and injured her knee. It was diagnosed and treated by an able surgeon. As he lived some distance from her he did not see her again for many weeks. He did not consider the case a serious one, and probably it was not, but her apprehensive mother and solicitous neighbors and friends so worked upon this sixteen year old girl, by illustrations and personal reminiscences of disastrous results of knee injuries, that she made no attempt whatever to walk or even move or straighteen the limb.

The case was considered, and no doubt discussed in the presence of the young lady, and thought to be of altogether too serious a character to be treated by any local physician. Accordingly she was brought to St. Joseph's Hospital. She traveled all the way in the baggage car, lying upon a cot, as she claimed to be unable to sit up, and she was thus conveyed to the hospital. The knee was slightly flexed, and was a little over an inch larger than the corresponding member; there was swelling in the foot and leg; there was, however, no effusion, local or general temperature. Her sleep was not in the least disturbed, although a cage was worn over the knee to protect it from the bed clothes. A few weeks of constitutional treatment and isolation, with suggestions and instructions as to the proper use of the limb when first beginning to walk cured the case. This was a typical so-called neuro-mimetic joint.

We see many cases, however, in which this nervous phenomenon is not so marked, yet having the same local symptoms as in the case just reported. It manifests itself in people of greater determination of character. Their walk is characterized by a slight limp, or there is a slight impediment to motion, and a disinclination to use the injured joint; there is an expression of pain when the same condition affects other joints.

The concentration of attention upon the affected parts is a most powerful factor in producing and perpetuating the phenomena of functional joint disease. It is extremely difficult for us to understand the nature of this functional affection, but it is to be borne in mind that an undiscovered cause exists as incomprehensible as the nerve changes in tetanus or hydrophobia. We should not think of attempting to relieve these cases by uncouth or old fashioned heroic remedies. Of all cases they are the most important, they require the greatest patience, experience, skill and scientific knowledge, and they should be trusted only to the honest, conscientious man.

Is it not strange that the regular practitioner, constantly writing and experimenting, does not realize the clinical significance of the great influence of suggestion. Instead, he treats these cases with disdain and indifference, and thus compels them to resort to the charlatan, who many times treats them more wisely than he knows.

ORIGINAL ARTICLES.

SURGICAL INFECTION; ITS CAUSES, PREVENTION AND TREATMENT.*

By William Asbury Hall, M. D.

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If there is one thing more than another that has marked the progress of the science of medicine during the past decade, and at the close of the nineteenth century, it is the study of the origin of disease. After many centuries of research for anatomical lesions, for impaired physiological function and of the symptomatology pertaining thereto, she is devoting herself with enthusiastic zeal to an investigation of those causes that throw the human system "out of harmony with itself" and lead to its premature dissolution.

The greatest triumph of this study has been the establishment of the fact that in all contagious and infectious diseases there exists in the body of the individual attacked an order of the lower vegetable organisms, which are capable of being implanted in the tissues of another heathy individual and producing in him a disease similar to the original. Although the precise nature and description of the organism which accompanies its particular disease has not been verified in every case, yet it has been so in a sufficient number to lead us to accept it as a fact that *all contagiom is due to the presence of a living organism.* No other theory as to the nature of contagiom that has gone before has ever been verified to the slightest extent. The exact nature of contagious material, i. e., a living vegetable organism, is definitely settled, and must be accepted without question. This discovery has relegated the old term, *virus*, to obscurity, and made possible all of the brilliant results of modern operative surgery. It is a discovery that fittingly crowns the close of this century, and in its practical application will surpass any that has preceded it.

By the term "surgical infection," or, in other words, infection as applied to surgical cases, we mean a disturbed condition of the system, associated with and accompanied by the development, growth and death of certain vegetable organisms that are defined in general terms, bacteria. This disturbance of the system manifests itself in fever, in intoxications of nerve centres with the attendant phenomena, and exhaustion of vital forces. Bacterial invasion may, however, under particularly favorable conditions produce "shock" and consequent death before the system can react sufficiently to show fever or other signs of the conflict that usually takes place between the injurious agent and the tissues while striving to maintain their integrity. Surgical infection in its mode of attack, in its symptomatology, in its course and in the pathological lesions manifest after death conforms strictly to diseases of an inflammatory type. Indeed, so strictly is this true that bacteriological enthusiasts go so far as to say that all true inflammation is of bacterial origin. This claim cannot be substantiated, for certainly we frequently find a condition of the tissues characterized by continued irritation and attended by the various stages of hyperæmia, stasis and diapedesis with the symptoms of redness, heat, swelling and pain due to purely mechanical or chemical causes and without the presence of bacteria. Neither is it reasonable to assume that there is no cause capable of producing the death of a white blood corpuscle that has emigrated from its vessel wall other than a bacterium.

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* Read before the Hennepin County Medical Society, March 1, 1897.

I wish to say now, that in the discussion of this subject, it is far from my purpose to pose as a bacteriologist. On the contrary, I stand with the great army of general practitioners of medicine and surgery who are, and must of necessity always be, the *jury* that shall decide as to the merits of the various claims of those who pursue narrow lines of research.

Bacteriology has taught us much. It has taught us first and foremost that all infection and contagiom is accompanied by the presence of a minute vegetable organism. It has also taught us that these minute vegetable organisms are everywhere present, and that only a very small proportion of them can be said to be disease producing, probably no greater proportion than the poisonous plants of a larger growth, but on the contrary most of them serve a very useful purpose. It has shown us that each special organism requires a suitable soil, or culture medium as it is called, in order to develop, and without this suitable medium it cannot develop. It has shown us that the healthy human body, although it is completely surrounded by bacteria and contains within itself many of the so-called specific bacteria, is highly antagonistic to the development of vegetable life within itself.

Now so far so good. But bacteriologists undertake to tell us in what manner the presence of living, growing plants in the animal organism produce disease. First, they say that they may exist in such numbers as to cause obstruction in the blood vessels of the lungs and kidneys. Secondly, that they may erode and perforate cells and may produce death by the anatomical lesions which they develop. Thirdly, that in order to nourish themselves, they consume such portion of the cells as they require, and lastly that they generate substances that are poisonous, and also form soluble ferments which cause the breaking down of other cells that are healthy. The last proposition is the only one that has, as Bouchard says, received the slightest amount of demonstration, and he believes that to be the chief part that they play in the production of disease. Now, before going further, let us ask ourselves what is disease? Certainly we have all gotten to a point where none of us believes that a person that is sick is either possessed of a devil or persecuted by one.

Huxley's definition is probably the best one that can be given. He defines disease as "a perturbation of the normal activities of a living body."

Disease is not an entity. It is not something that can be put on or off, as a coat. It is a change in the relationship of normal cell activities. Such a change is disease and a return to the normal is the cure. The causes of these changes in the relationships of cell activities are innumerable. One of the first which I shall mention is that of diathesis.

Diathesis, or (to define it) a *permanent disturbance of nutrition,* is "a condition which prepares, provokes and maintains different diseases."

A large proportion of acute diseases, and nearly all chronic ones, are probably due in a great measure to disturbances of nutrition. Just what the effect upon the nutrition of cells is, when affected by traumatic influences and the various physical, mechanical and chemical irritants, is something that has been very little studied and consequently of which very little is known.

Another undoubted element in the production of disease is reflex irritation of the nervous system. The effects of cold and moisture, for instance, upon peripheral nerve endings, and just in what manner they help to bring about disease is another subject which has been little studied and could be with great benefit. That they do bring about disease is a well-known fact, and I believe that nerve irritations have a very important bearing upon disease in general. And lastly, we have to deal with the subject of infection. Were pathogenic microbes the sole cause of any disease, the human species would long ago have been wiped out of existence. Their universal distribution with their deadly effect would have destroyed all animal life.

But in the economy of nature it is so ruled that more than one pathogenic condition is necessary to the production of disease. Several are necessary and must combine in order to be effective. And so it is with the pathogenic bacteria accompanying the so-called infective diseases. The microbe is simply one element in the production of disease, *but not the disease or the germ of the disease itself.* Pathogenic bacteria may be truly likened to vultures that watch the dying struggles of a wounded animal and, as soon as the animal is sufficiently weakened, swoop down and complete the work of destruction.

Do not for one moment imagine that I am trying to belittle the work of the bacteriologists. They have done much in the line of differential diagnosis and will do much more (for bacteriology is yet in its infancy), and are entitled to the plaudits of a grateful profession. But while they have been chasing microbes, the medical profession has been gazing spellbound, and not busying itself investigating the circumstances which enable the animal organism to resist the invasion of these same pathogenic bacteria. And this brings us to the consideration of our subject proper. What are these causes which render the development of infection possible in surgical cases, how can we prevent it, and what remedial measures shall we employ in order to render this infection harmless?

In searching for the cause of infection one fact should always be borne in mind, and that is, that actual infection may occur both from *without* the body and from *within* the body. This applies equally to the field of operation, and accounts for the fact that no matter how careful we are with our technique, we sometimes get an overpowering infection in which the life of the patient is lost. As an example of infection taking place from within, comes the much discussed subject (in this Society) of osteomyelitis, which more frequently occurs in growing boys as the result of fatigue while skating or swimming with exposure to cold. Another instance is the occurrence of acute purulent meningitis, which frequently results from the same causes. I do not concur at all in the expressed opinion that these diseases are usually the result of a previous suppurative process in some other part of the body, and in reality metastatic processes. Infection from within may occur from the tonsils or pharynx, the respiratory or intestinal tracts, or even the blood itself. In general it may be said that all causes which lower the vitality of cells, either by impairment of their nutrition or by impairment of their nerve supply, tend to make infection possible. Another thing to be borne in mind is that infective agents (even of the same species) vary in virulence; and while some infections are so virulent in character as to require but comparatively slight impairment in order to make a successful attack, the converse is equally true. Extensive impairment is necessary in the case of weak infective agents to make such infection successful.

But some degree of impairment is always necessary in order that the great army of pus-producing germs with which we have to deal in surgical infections may exert their pathogenic properties.

Among the causes which lower the vitality of cells and impair their nerve supply may be mentioned the following, viz: *Shock*. The shock of an injury or operation always predisposes to the developmentof sepsis. *Hemorrhage*. This is exemplified in obstetrical practice, when, after severe post partum hemorrhage, septic infection to a greater or less extent is practically the rule.

Fatigue, anxiety, exposure to cold and wet, intemperance, starvation, continued breathing of foul air, prolonged anæsthesia during operations, previously existing disease,open wounds exposed to the air. These are some of the causes which favor the development of pathogenic germs in the living animal organism, but not all, by any means.

Roswell Park, of Buffalo, N. Y., in his work on surgery, recently published, devotes a chapter to the subject of "auto infection, especially in surgical patients," which is the first time any mention has been made of it in any surgical work. He recognizes the fact, and applies it to the subject of infection, that a great many of the morbid conditions from which the human race suffer, are those due to causes arising entirely from within their own systems and in consequence of deficiencies of elimination or perverted physiological processes which, in large degree, are themselves the results of error and indiscretion in diet, in manner of life, in habits, etc. Take, for example, the function of the liver. Man forms by his liver in eight hours enough poison to kill himself. What must be the effect upon cell activity of even a partial suppression of this function? We all know the effect of suppression of the function of the kidneys. What must be the effect upon cell activity of even a partial suppression of this function?

Putrefaction of intestinal contents, due to imperfect metamorphosis of food and the presence of the so-called saprophytic bacteria with the well known resorptive power of the bowel must of necessity furnish a large proportion of the auto-intoxications and auto-infections. These are but a few of the instances in which the suppression or perversion of normal function favors the development of septic infection in surgical cases. Of all the causes that have been mentioned as favoring the development of surgical sepsis, I believe these to be the most important to the surgeon, for while the other causes that have been mentioned are not under his control, yet the causes which lead to auto-infection may very largely be so. As Park says, "that surgeon will prove himself the best master of the situation who is thoroughly conversant with all that the general topic of auto-infection comprises and implies, for he will find that his surgical patients do well or badly, just in proportion as he maintains an equilibrium between ingestion and egestion, or as he realizes that retained excrementitious products are among the most active predisposing causes of what may, a little later, appear as distinct surgical sepsis."

In taking this view of the manifold causes of surgical infection, it follows, as a matter of course, that the surgeon who subjects a patient to a surgical operation (except in emergency cases), without eliminating as many of these causes as possible before such operation, will be held culpable in case infection takes place. The preventive treatment of surgical infection resolves itself into something more than the aseptic and antiseptic treatment of wounds.

The necessity of preventing the access of pathogenic bacteria to wounds by all the painstaking possible, is a fact too well established and recognized to need more than a passing mention. In fact, it is now the rule that all surgeons must have the most scrupulous regard for absolute cleanliness in their operations, and in protecting the field of operation afterwards, and I believe it also to be a fact that more cases of surgical infection occurring after operations are due to this inattention to the causes of auto-infection, than to any fault of the operative technique.

All surgical patients should as far as possible be subjected to the most critical examination before operation. The surgeon of today is not the barber surgeon of the fifteenth century, who cut under the direction of the physician, but a man who not only possesses coolness of nerve and mechanical skill (which of themselves can never make a successful surgeon), a man who not only possesses these qualities, but in addition has the calm judgment, the keen discernment and power of diagnosis of the physician of internal medicine.

I have no faith in any so-called surgeon who says that he knows nothing of physical diagnosis and internal medicine but is a specialist in surgery. He is in reality a barber surgeon. The careful and critical physical examination will frequently disclose errors in secretion and elimination which will be likely to lead to infection unless relieved, and also sometimes reveal contraindications to operation not even dreamed of. Such examinations will largely reduce the number of unexpected deaths after operations.

Special care should always be taken in the preparation of patients for operation (except in emergency cases where, of course, it is impossible), and the lessened number of infections will, I believe, justify all the painstaking.

And now, having briefly discussed the causes and prevention of surgical infection, we come to the last division of our subject, viz: the treatment of surgical infection after it has occurred.

The amount of our *actual* knowledge in this field is *small*, but our *speculative* knowledge infinitely great. We all know that all cases of surgical infection which have led to the formation of circumscribed collections of pus must be dealt with by free incision and drainage; but in this connection it must be remembered that a circumscribed collection of pus always means that nature has won the fight by establishing a wall of granulation tissue, and all the help she needs is that we provide for drainage. When nature has been unable to effect this barrier, and as a result we have diffuse suppuration, we are practically helpless in affording any aid, and absolutely so when the infective agent is in the blood itself, and we have the condition known as true septicæmia. The support of the nutrition of the patient by means of easily assimilated food and stimulants is always indicated; but any treatment directed towards the relief of the symptoms of such infection, such as reducing the fever, is worse than useless. Our only hope of successfully relieving such infection lies in the investigation of nature's method of combating such infections.

As far as our observation goes, she does so by the so-called process of phagocytosis, which is shared in not only by the leucocytes but by the fixed connective tissue cells as well.

In the case of pus formations it would seem that there is always a pronounced leucocytosis. It is claimed that a diagnosis can always be made between typhoid fever and suppurative appendicitis by an examination of the blood showing leucocytosis in the cases of appendicitis. If it be true that these are nature's ways of combating infection, then our studies should be directed along this line to enable us to determine how we can assist nature in developing these processes.

The effects of mercury in syphilis and quinine in malarial fever come as near specifics as anything we have in the line of specific treatment, but just what their manner of action is we do not know. As to the effects of serum therapy I must admit to being somewhat skeptical, but am prepared to accept it when proven. To my mind it is as yet somewhat inconsistent, and not borne out by analogy, but in this I may be entirely mistaken.

I offer it as a suggestion, merely, that if the action of the alkaloidal substance produced in the tissues by the presence of minute vegetable organisms leads to the formation of an antitoxine which shall neutralize the toxine and leads to immunity, may not the immunity acquired by the system to the exhibition of constantly increasing doses of the poisonous alkaloids of plants of a larger growth be attained in the same way? Is not one proposition as logical as the other?

Our knowledge of the chemical composition of the so-called toxins produced in the living tissues by the action of bacteria is practically none, of the antitoxine still less, aud of their mode of action absolutely nothing. Speculation is infinite and chaotic. The immensity of the subject fills me with awe, and the limits of this paper will not allow of any expression of opinion by myself, but undoubtedly the discussion of the subject by this Society will do much to enlighten us.

THE STATUS OF THE SURGERY OF THE GALL BLADDER, GALL DUCTS AND INTESTINE, DURING THE LAST DECADE, AND THE INFLUENCE OF THE MURPHY BUTTON ON THE SAME, TOGETHER WITH 150 CASES NOT YET REPORTED IN THE LITERATURE.—A CRITICAL STUDY.

By ADOLFO LURIA, PH. D., M. D.

Chicago.

(Concluded from page 151.)

III. INFLUENCE OF THE BUTTON METHOD ON THE SURGERY OF THE GALL DUCTS AND INTESTINE.

I come now to the last part of my considerations to analyze what influence the anastomosis button exercises on the operations in which Murphy recommends the use of his button, in order to arrive at some fair conclusions relating to its value and standing in modern surgery, and I will take up the considerations in order as Murphy recommends them.

A. Cholecystoenterostomy. Of the gall bladder and intestinal fistula we have had up to now 68 cases, with 66 recoveries and two deaths, or a mortality rate of 2.64 per cent.; these were for non-malignant diseases, while there were 14 cases for malignant disease with only 2 recoveries and 12 deaths, or a mortality rate of 85.71 per cent.

There were reported:

Sixty-eight cholecystoduodenostomies, with 62 recoveries and 6 deaths, or a mortality rate of 7.79 per cent.

Seven cholecystenterostomies, with 2 recoveries only and 5 deaths, or a mortality rate of 71.42 per cent.

Three cholecystojejunostomies, with 2 recoveries and 1 death, or a mortality of 33.33 per cent.

Two cholecystocolostomies, with 1 recovery and 1 death, a mortality of 50 per cent.

One cholecysterotomy, with no recovery and one death, or a mortality of 100 per cent.

Three cholecystotomies, with no recovery and three deaths, or a mortality 100 per cent.

The causes of death were in this class of cases as follows:

One died of peritonitis.
Four died of exhaustion.
One died of hemorrhage.
One died of sepsis.
One died of shock.
One died of prostration.
Two died of cholæmia.
Two where immediate cause of death is not stated.

From the above we can infer that the operations in this group of cases by the aid of the Murphy button were to a marvelous degree successful, especially when we recollect how high the mortality rate of cholecystoduodenostomies was with the former methods. Of the same class of operations, we had during eight years prior to the introduction of the button method 25 cases with 14 recoveries and 11 deaths.

These figures speak for themselves and need no comment. But what would theoretically the objections to cholecystoduodenostomy be, by the aid of the Murphy button? Let us see. There is:

(1) Danger of infection of the liver or the gall track, as a result of the operation. While it must be admitted that such an infection is possible, still experience taught us that such is not the case.

(2) Danger of infection of the gall bladder by fæces. Here, too, practice has fully sustained Murphy's assertion that after the operation the gall bladder will contract to a tube and thereby make the opening between gall bladder and intestine so small that fæces cannot well be admissible into its tract.

(3) Hemorrhage. While this is one of the commonest dangers by the suture method, the pressure produced by the button acts as a hæmostatic and hemorrhage is only a source of annoyance in patients suffering with cholæmia, because ordinarily in these cases a general tendency exists to it on account of the purpura hemorrhagica which is present even before any operation is done.

(4) Danger of non-union. This is also in marked contrast with the suture method. In all the cases operated upon there is as yet not one case on record where non-union took place. Can we say as much of the suture method? By no means.

(5) Danger that the button may drop into the gall bladder and be retained there. Yes this might happen and Bridon's[84] case is an illustration of it, as there it is supposed that the button instead of being passed, fell in all probability into the gall bladder, but till today no ill results are reported to have happened to the patient.

(6) Liability of recurrence. This happened also but once.

Thus we see that the objections that might be raised are very slight in degree and only of theoretical, if any, value.

What are the indications for this operation?

According to Murphy cholecystoduodenostomy is indicated:

(a) In obstruction of the common duct.

(b) In obstruction of the cystic duct, where cystotomy is inadmissible.

(c) In cases of chronic cholecystitis, with thickening of the wall of the gall bladder.

(d) In cases of gall bladder fistula, when the patient is greatly emaciated from loss of bile.

(e) In the early stages of carcinoma of the head of the pancreas.

I will admit, however, that the operation of cholecystoenterostomy has been performed regardless of the above indications, and was resorted to even in cases where choledochtomy, cholecystotomy and temporary drainage would have accomplished the same result.

So much for the cases of cholecystoduodenostomy in non-malignant disease, but how about the operations for malignant disease? Here too, the figures speak plainly, *that in such cases we certainty are never justified in operating*, as we know with almost certainty what the issue will be, because to the cholæmia present we have to add the malignant cachexia, and the tendency to general subcutaneous and submucous hemorrhage is so great, and the danger of bleeding from local lacerations so marked, that the prospects of even prolonging life are nil. To this category of cases I may well add those of gangrene of the bladder, as here too the results obtained contraindicate cholecystoenterostomy.

In summing up we come to the following conclusions:

Cholecystenterostomy has been so far influenced by the button method as to reduce its mortality rate from 44 per cent. to 16.66 per cent., a fact which needs no comment; and this (a) because of simplicity of technique, provided the surgeon is master of its technique, thereby lessening (1) the danger from shock from exposure to the anæsthetic, (2) the danger of infection of the peritoneal cavity by prolonged manipulation; (b) because of its perfect union, which we have seen is in marked contrast to the suture method, as there is uniform coaptation of the gall bladder to the duodenum; (c) because of the small amount of hemorrhage; while its amount is great with the suture method, with the anastamosis button the equality of pressure produced renders a great loss of blood almost impossible; (d) because of the advantage that there is in immediate restoration of bile to the alimentary canal with sufficient assurance that none of it will escape into the peritoneal cavity at the line of approximation.

B. Gastroenterostomies. Of this group we had 110 cases, with 64 recoveries and 45 deaths, reported as follows:

Seventy-five gastroenterostomies with 43 recoveries and 32 deaths, or a mortality rate of 42.66 per cent.

One gastrotomy with 1 recovery and no death.

Sixteen gastroduodenostomies with 9 recoveries and 7 deaths, or a mortality of 46.7 per cent.

Eleven gastrojejunostomies with 6 recoveries and 5 deaths, or a mortality rate of 45.45 per cent.

Seven pylorectomies with 5 recoveries and 2 deaths, or a mortality of 28.57 per cent.

One pylorectomy and gastroduodenostomy with 1 recovery.

Of these the immediate causes of death are reported as follows:

In 4 cases the cause of death is not stated.
Seventeen cases died of exhaustion.
Six cases died of peritonitis.
Two cases died of sepsis.
Two cases died of shock.
One case died of hemorrhage.
Two cases died of cachexia.
Three cases died of inanition.
Two cases died of pneumonia.
One case died of broncho-pneumonia.
One case died of perforation:
Two cases died of collapse.
One case died of fatty degeneration.

What are the pathological lesions for which gastroenterostomy is indicated? They are as you well know twofold, to wit:

(a) When neoplasms involve the pylorus or the duodenum, thereby producing obstruction, or

(b) When cicatricial contractions occlude the gut.

Let us now consider gastroenterostomy for malignant disease. Of this there were:

Methods employed	Total	Unknown Result	Recovery	Death	Mortality per cent.
Suture...........................	28		16	12	42.8
Mechanical Means....	49		36	13	26.5
Suture—Mechanical means .	8		1	7	87.5

Of the positions there were: 36 side-to-side, 7 side positions, 7 end-to-side, 18 lateral positions, 34 unknown or not recorded.

Of the mechanical means employed there were:

Methods	Total	Unknown Results	Recovery	Death	Mortality per cent.
Bone Plates...	36		28	8	22.2
Turnip Plates....................	2		1	1	50.0
Rob. Segm. Rubber Plate....	2		1	1	50.0
Mayo Robson's Bone Bobbin.	2		1	1	50.0

Of the sutures with mechanical aids, there were:

Abbé's catgut rings, 5 with no recovery, 5 deaths; mortality 100 per cent.

Brokaw's segment rub. ring, 2 with 1 recovery, 1 death; mortality 50 per cent.

Elastic ligature, 1 with no recovery, 1 death; mortality 100 per cent.

The causes of death by all methods were:

Exhaustion in 13 cases.
Shock in 4 cases.
Peritonitis in 4 cases.
Hemorrhage in 2 cases.
Ileus in 1 case.
Different complications in 2 cases.
Unknown in 4 cases.

Of gastroenterostomy by lateral approximation we can infer that by the aid of the Murphy button no cicatricial contraction occurred to such a degree as with all other methods. When we consult the post mortem records of this operation by the other methods, we are impressed with the fact that in five cases out of twenty-eight operated upon, and which survived the immediate effects of the operation, but on whom an autopsy was subsequently held, complete closure of the opening had taken place. To these Larkin's[86] case must be added, as in this case stenosis had occurred, requiring a secondary jejunostomy. This alone is a forcible objection to the suture method in gastroenterostomy, and one which should give the preference to the Murphy button, as by means of the oblong button the threatened stenosis is overcome.

While all this is true, nevertheless it is equally certain that, with the button method, a series of complications may evince themselves to the detriment of the patient. Let us consider them for a while. There are:

Danger of slipping away of the wall from the clasp of the button.

But this unpleasant feature, which happened in one case, may be remedied: (a) By using a button appropriate to the size and thickness of the wall; (b) by placing a running row of sutures outside of the button, although Murphy claims that this suture, provided the proper sized button is used and the running thread properly inserted and tied, is useless; still I consider it a matter of precaution the surgeon should take for the patient to employ the suture according to Mynter's[34] suggestions.

Of gastroenterostomies in non malignant cases there were, by the method of suture, 22 cases with 18 recoveries and 4 deaths, a mortality of 18.2 per cent.; mechanical means, 11 cases with 10 recoveries and 1 death, a mortality of 9 09 per cent.

Of these there were employed:

Bone plates 10 with 10 recoveries, no deaths.

Swedish turnips 1 with no recovery and 1 death, a mortality of 100 per cent.

Suture aided by mechanical means 4 with 4 recoveries, no deaths.

Total number 37 with 32 recoveries and 5 deaths, a mortality of 13.51 per cent.

The causes of death in these cases were:

Exhaustion in one case, ligature of hepatic artery in another case, perforation at seat of suture in a third case, diarrhœa in still another one, and obstruction in the last instance.

All in all, from what was said in the foregoing, we may conclude that

(a) Gastroenterostomy should never be performed on extremely cachectic patients, as nothing is gained by the operation but a very short period of time, when the marasmus of the disease and not the obstruction of the pylorus carries away the patient. In operative procedures of this kind shock is also greater than in those of a non-malignant type; and, finally, by having their regenerative powers lessened to a great extent the process of repair is necessarily also a very tedious one, but union can be hastened by scarifying the peritoneum of the stomach at the line of approximation, or by touching it with a concentrated solution of carbolic acid, as recommended by Chaput.[30]

(b) That it is good practice to support the button by an outside suture, not only for the relief of tension, but as a safeguard in the interest of the patient.

(c) To support the patient's strength by giving him bland liquid nourishment right after the effects of the anæsthetic have passed away.

(d) To select always the posterior wall of the stomach as the best point for approximation.

(e) That the lateral approximation by means of the button is the only method whereby the aperture is produced by a removal of tissue and not by simple incision, as it is the case with all other methods.

C. Pylorectomy. This operation was for the first time performed by Rydygier and perfected to a very high degree by the immortal and lamented Billroth.[87] In his operations the end of the duodenum was united by a Czerny-Lembert suture to the opening in the end of the stomach, but Billroth's operation consumed so much time—from two and a half to three hours—that the patients were already collapsed, in the majority of cases, before the operation was completed. Another danger of the operation was gangrene, which resulted from the strangulation produced by the suture. The result, naturally enough, was non-union and thereby sepsis which added to the mortality rate, already high in these operations, as we have seen, by shock.

To obviate these dangers the end of the stomach and the end of the duodenum were entirely closed by sutures and a lateral approximation of the stomach to the duodenum or jejunum established. There are on record twenty-four cases operated upon by this method with thirteen recoveries and eleven deaths, 45.8 mortality. Murphy recommends pylorectomy in all cases of incipient carcinoma of the stomach.

Of pylorectomy with gastroenterostomy there were:

By suture, as already stated, 24 cases with 13 recoveries, 11 deaths.

By mechanical means 2 cases with 2 recoveries, no deaths.

By suture with mechanical aids 1 case with 1 recovery, no death.

Total, 27 cases with 16 recoveries and 11 deaths, mortality 40.74 per cent.

The causes of death were attributable in

Five cases to peritonitis.

Three cases to shock.

Two cases to exhaustion.

One case unknown.

A better and safer method is the approximation of the end of the duodenum through an incision made for that purpose into the posterior wall of the stomach, and this because there is

1. Less danger of shock, because of the rapidity with which the operation can be performed.
2. Because the stomach is securely closed.
3. Because there is a uniform pressure in approximation of the duodenum to the stomach.
4. Because it lessens leakage at the seat of approximation; and finally
5. It lessens the dangers of infection, and therefore there is less likelihood of ensuing peritonitis and this for the following reasons:

(a) Because the peritoneal surfaces have not been exposed, and

(b) Because there is no sufficient manipulation to abrade the endothelial layer on its surface.

There have been two cases on record operated upon in this manner by the aid of the Murphy button.

D. Operations on the intestine. Of these there have been 237 cases, of which 179 recovered and 56 succumbed and 2 unknown, a mortality of 23.62 per cent. The causes of death were in three cases unknown.

Thirteen cases due to shock.
Ten cases due to collapse.
Ten cases due to peritonitis.
Seven cases due to exhaustion.
Two cases due to pneumonia.
One case due to sapræmia.
One case due to shock and sepsis.
One case due to shock and hemorrhage.
One case due to septic peritonitis.
Two cases due to intestinal obstruction.
Two cases due to infection.
One case due to emaciation.
Two cases due to perforative peritonitis.

The button method, while its apparatus was riginally devised for operations on the gall bladder, and we have seen how admirably it has filled its purpose, still finds the broadest field for its use in the domain of the surgery of the intestines. But in order to appreciate the merits of the surgical procedure by this method, one must always bear in mind (a) the special pathological conditions, and (b) the general status of the patient exhibited at the time of the operation. No matter how ideal the method may be, as long as diagnosticians are not more accurate in their art, and the surgeon either too hasty or too tardy in his action, as long as hopeless cases are operated upon for the sake of the surgeon's glory and not for the patient's welfare, as is now-a-days so often done, so long, I say, will our mortality rate in intestinal surgery be a high one, no matter by what method the operation is followed out. Prompt action on the part of the surgeon, as soon as the case is properly diagnosticated, but hands off from cases where the final outcome is palpably hopeless. Certainly, I admit, that even now a-days the status of our knowledge of the existent pathological condition is often so limited that an accurate and definite diagnosis is an utter impossibility; but, on the other hand, when the case is not already a doomed one, the idea must weigh on our mind that in operative cases waiting will not benefit the patient, but, on the contrary, with every minute lost, *pari passu*, we lessen the resisting power of the patient and increase in like proportion the necrotic process which is going on rapidly. This is just the other extreme under which we are often forced to operate, and Murphy is fully justified when he says: "Expectant treatment in abdominal lesions is only justifiable when the diagnosis of intestinal obstruction is positively excluded," and yet, day by day, the surgeon is compelled to operate on account of the criminal delay upon patients who are already moribund. Can we expect under such circumstances good results, or, at best, a low mortality rate? By no means.

With these facts in mind, permit me to proceed. We know that intestinal approximation is required in:

1. Resection of the bowel for gangrene, and this (a) for internal obstruction, (b) hernia.
2. Resection of the bowel for cure of fæcal fistula.
3. Resection for internal obstruction other than malignant disease.
4. Resection for malignant disease.
5. Resection for perforations of the intestine, traumatic as well as pathological.
6. Resection of the rectum.
7. Bacon's operation.

I. OPERATIONS BY LATERAL APPROXIMATION.

Let us now review lateral approximation by all methods. Of these there were:

By suture 33 cases with 20 recoveries and 12 deaths, 1 unknown, a mortality of 36.4 per cent.

By suture with mechanical aids 23 cases with 18 recoveries and 5 deaths, a mortality of 21.7 per cent.

Of these there were:

Bone plates 14 cases with 11 recoveries and 3 deaths, a mortality of 21.4 per cent.

Robs. bone bobbin 1 case with 1 recovery.

Potato plates 1 case with no recovery and 1 death, a mortality of 100 per cent.

Robins' rawhide segment plate 1 case with no recovery and 1 death, a mortality of 100 per cent.

Abbé's rings 4 cases with 1 recovery and 3 deaths, a mortality of 75 per cent.

Davis' mats 1 case with no recovery and 1 death, a mortality of 100 per cent.

In 1886 Von Hacker,[74] of Vienna, performed for the first time successfully lateral approximation, which was enthusiastically received by the profession, because it supplanted circular enterorrhaphy with its great mortality rate, and because, just at that time, many devices sprang up to simplify the operation, such as Senn's bone plates, Davis' catgut, Robinson's rawhide and segmented rubber plates, but the objections to the same became more and more manifest the longer the experience of the profession. We will now consider what the objections were:

(a) Time and labor which is required to a great extent in this operation.

(b) The danger of necrosis at the inverted portion at some point over the long space required in these operations.

(c) The danger of stitch abscess, of which the Rindfleisch[88] case is a beautiful illustration.

(d) The danger of contraction, because there is no juxtaposition of the incised edges of the various coats of the intestine, an example of which we have in Salzwedel's[89] case.

While all these objections are fully sustained by the suture method, none of them can be raised against the button anastomosis, although we have the experience of the same in four cases of malignant growths with four recoveries and no deaths, and fifteen cases of non-malignant growths with thirteen recoveries and two deaths, a mortality of 13.33 per cent.

II. END-TO-END APPROXIMATION.

It was believed by most surgeons that with the end-to-end approximation, because it approaches so closely the natural position, there was found a powerful agent wherewith to combat the frightful mortality heretofore obtained with the former methods. Did it realize the hopes of the profession? By no means. The mortality rate, while it was lessened to a certain degree, still remained a high one, and this on account of the following reasons:

(a) Time, which is always required.

(b) Perforation of parts not covered by peritoneum, as the mesenteric attachment.

(c) Peritoneal infection from the number of sutures, as there is liability that some of them will go through the entire thickness of the bowel.

(d) Obstruction due to post operative invagination.

(e) Obstruction due to contraction of the necessarily broad cicatrix, and here again I repeat that while all these objections are valid in end-to-end approximation by suture, none of them can stand the test of the button method.

Let us now see what results the Murphy button yielded, and this in

(a) Resections of the bowel for gangrene.

The number of operations, including both large and small intestine, amount to 20, with 15 recoveries and 5 deaths, or a mortality rate of 25 per cent., and of this one case with recovery was for the relief of a gangrenous fæcal fistula.

(b) Resections of intestine for fæcal fistula. Of these there were 23 cases operated upon with 22 recoveries and one death.

In all those cases where an autopsy was held the fact was revealed that the button was always in perfect position and without breakage.

(c) Resection of the bowel for obstruction from non-malignant disease. Of this group the cases number 36 with 27 recoveries and 9 deaths, or a mortality rate of 25 per cent.

(d) Resection of the bowel for malignant disease.

In this class of cases, owing to their own natural history, we find a higher mortality rate than in operations for malignant disease in other parts of the body. There has been a total of 47 operations with 35 recoveries, 1 unknown and 11 deaths, or a mortality rate of 23.40 per cent.

(e) Resections for perforations of the intestine, traumatic and pathological.

Here, too, the mortality rate has always been a high one, whether the same was done for perforations either due to gunshot wounds or to perforating ulcers and lacerations of the bowels, but the mortality rate is not attributable to the operation but to the grave pathological condition produced by the lesion.

According to the statistics of Leube, in 322 cases, it appears that when the operation was done within twelve hours after the injury was inflicted, the mortality rate was 58.2 per cent. If, on the other hand, it was done later on, the death rate was 79.5 per cent. Early operation, then, and not the method alone, is in those cases the principal factor of reducing the percentage of the death results.

(f) Resections of the rectum.

This operation has been performed in a few cases, six in all, with five recoveries and one of which the final result is not known so as not to allow me to make any deductions. The same may be said of

(g) Bacon's operation, which was introduced and described to the profession by Dr. J. B. Bacon, and has been performed but once with gratifying results.

French surgeons, as Chaput, Villard and Forgue, have proposed some more or less practical modifications on the same, and use them in all their cases of intestinal surgery, and for the sake of historical completness there remain to mention the modifications of Ramaugé,[90] Garbarini,[91] Duplay,[92] Bonomoc Rho,[93] Allesandri,[94] Thienol,[95] Hayes,[96] Hagapoff,[97] as well as Achille Boari,[98].

The finest, and in all probability the most practical evolution of the Murphy button, is without doubt the decalcified bone collars of my genial and estimated friend, Dr. J. Frank,[99] of our city, as it does away with the principal objection raised against the Murphy button; that is, that of a foreign, unabsorbable body, which we are bound to leave in the abdominal cavity. Although practice has fully demonstrated that we can trust the button with absolute safety there, still the bone collars have the advantage that after their purpose has been accomplished they become absorbed, but so far their practical value in other respects has yet to be demonstrated on the human subject. Still even now in their experimental stage they do present many plausible and valuable advantages which reflect creditably on the brilliancy of the mind and untiring efforts of the innovator.

German authorities, fine analytical surgeons as they are, were at first slow to accept the Murphy button, but today such eminent authorities as Czerny, Wölffler, Schede, Hahn, Kümmel, in highly flattering commendations upon the advantages it offers as the only means by which, till today, ideal results, if the method *per se* is not an ideal one, can be obtained, recommend warmly its use in the surgical arena of the "Fatherland."

The expectation Murphy had from its method is realized; it brought about even a greater revolution and change for the better in the field of surgery of the gall bladder and intestinal surgery than did the intraäbdominal treatment of pedicles in the treatment of the uterus and its appendages. It has conferred upon the profession a higher and more ideal means of treating those tedious diseases, and today the button method stands universally recognized as a matchless mode of operation.

If Murphy had done nothing for surgery but to suggest the idea of his button anastomosis, his name would deserve to ring down the ages as a benefactor of humanity. To the glorious names of Samuel Guthrie, the discoverer of chloroform, Morton, who produced practical anæsthesia, Ephraim McDowell, the father of ovariotomy, and the long host of pioneers, McBurney, Bull, Richardson, Morris, the medical historian will also have to add to the credit of the genius of American surgeons the name of John B. Murphy.

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HOSPITAL AND CLINICAL MEMORANDA.

ONE GUN SHOT WOUND OF THE ABDOMEN AND ITS LESSONS.

On December 20, 1896, at 4 P. M. I was called into the country about ten miles to see George H., aged thirteen, who had been accidently shot in the abdomen by his older brother about an hour previous. Upon my arrival, about 6:30, I found that a single buck shot had entered the abdomen about two inches below and three inches to the right of the umbilicus; the distance from the gun was eighty paces; the two were not in sight of each other and the boy was almost directly facing the gun when it was discharged. When the shot struck him he had fallen and fainted, and only revived when carried to the house eighty rods distant. Before my arrival he had vomited two or three times, was suffering intense pain and was very much excited from fear of the extreme gravity of the wound. An examination of the clothing showed the ball had passed through five or six thicknesses of cloth and had struck a glass button without breaking it. His right leg was paralyzed almost completely. Things about the house were clean, though not aseptic. He insisted that the ball was at a point he indicated upon the right side, just back of the anterior superior spinous process of the ilium. This I confirmed a little later with a probe, passing it with much difficulty between the layers of the abdominal muscles and touching the ball about four inches from the external opening. His father, a very intelligent man, was very anxious the ball should be removed, and so under ether I undertook to cut down upon it just inside the right innominata I soon abandoned this, finding the ball was so deep that I was afraid of doing more harm than had already been done with the gun. I washed the wound with bichloride solution, dressed it with carbolized glycerine, gave him a very small hypodermic of morphia and came away. I was so positive that the contents of the abdomen had not been disturbed that I told them recovery would in all probability be uneventful, and though I was a little exercised by the sickness of the stomach, confidently expected that all the symptoms would disappear and that he would be around in from ten days to two weeks. I warned them, however, that it would probably be hard to secure an action of the bowels and advised that they give him a carthartic the next day and continue until they had moved. On the twenty-second I was called on account of pain, vomiting and continued constipation. His temperature was 100 1-5°, tongue coated, continual thirst, though he would not drink much at a time. The wound was doing well, there was no soreness except superficially and the leg had nearly recovered its usefulness. I gave him ten grains of calomel every two hours until three doses had been given, and also a teaspoonful of sulphate of magnesia; after this I flushed the colon four times with no success except a little smell at the last flushing. I was so well satisfied that the whole trouble lay in the bowels and had no real connection with the wound that I left him again with the assurance that everything would be all right "when the bowels moved." On the twenty-fourth I was called again and found him vomiting greenish fluid. His father thought the bowels had moved fairly. He had eaten but little, a few oysters and sparingly of milk, and none of this was rejected. He had severe paroxysms of pain about every four or six hours; he was badly bloated, had an anxious look and slept but little, temperature 101°, skin hot and dry. There was only superficial pain around the wound or where the bullet lay. The pain would begin in the stomach and from there extend over the whole abdomen, and when he would vomit freely he would have a season of rest. I gave him one-eighth grain morphia hypodermically. He slept two hours perspiring freely and when he awoke felt much better, temperature normal. At the end of about six hours however, he began again to have pain and another hypodermic repeated the same experience. I then left the hypodermic syringe and tablets, with instructions as to their cautious use only when required. All went well until the thirty-first after night when I was hastily summoned and found that he had required the morphia about nine times in the four days, and while his bowels had moved the bloating had increased until he was as full as skin would hold; temperature normal. A rectal tube passed high up removed no gas. A large exploring needle in the region of the wound and ball gave only negative results. The vomiting, want of appetite and thirst were all present, no increase of tenderness or fluctuation about the wound. I immediately withdrew all opiates and gave a hypodermic of one-sixtieth of a grain of strychnia with chloral enough to give him rest. I repeated the strychnia in four hours and gave more sulphate of magnesia, having already flushed the bowel lightly. I left him the morning of January 1, and heard the same evening that he had a copious evacuation of the bowels during the day with a large amount of gas, after which he felt perfectly well and began to call urgently for food. He continued improving very fast until January 4 when he sat up all day and ate some blue-berries. In the evening he was taken with severe pain in the left side over the descending colon. This continued with greater or less intensity until my arrival January 6. I at once flushed the bowel with hot water, which gave him great relief. This was repeated twice during the day at intervals of two hours. Also I gave him two hypodermics of one-sixtieth of a grain each of strychnia and made hot applications to the abdomen together with hot foot baths. Left him 5 P. M. free from pain with a normal temperature, wound nearly healed. This time enjoined absolute adherance to a strict dietary regimen and quiet. His recovery from this was eneventful.

The lessons which might be learned from this case are:

First: To make a thorough diagnosis, and be sure of the condition existing, especially about such important organs as are found in the abdomen.

Second: To keep close watch of all the symptoms and not allow any symptom or set of symptoms to lead us into doing too much. How easy it would have been at the third or fourth visit to have opened up the wound or the abdomen in the hunt for something that was doing no harm and exposed my patient to all the dangers of a septic operation. Thousands of people in the country have been saved by abdominal operations that have not been performed.

Third: To be a little more cautious of the use of morphine, where abdominal bloating is concerned, and to remember that an obstinate constipation is very likely to follow a surgical injury where the patient has been well previously and is suddenly placed upon his back.

P. A. Walling, M. D.

Park Rapids, Minn.

NEW INSTRUMENT.

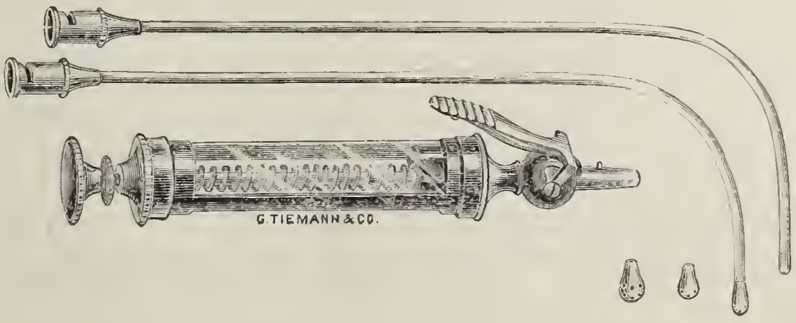
AN INTRATRACHEAL SYRINGE.

By J. E. Schadle, M. D.

St. Paul.

The cut below explains itself. The syringe is a self-emptying one designed for giving intratracheal injections, the self-action being secured by the expansion of the spiral spring which encircles the piston, while the fluid is released by pressure upon the cut-off at the distal end of the barrel.

The syringe is made by George Tiemann & Co., 107 Park Row, New York.



Northwestern Lancet.

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KOCH'S NEW TUBERCULIN.

Those who have been looking forward with expectation to the announcement of the results of Koch's later researches into the virtues of Tuberculin, will meet with disappointment at the smallness of the advantage of the new product over the old. Experiments have been going on for six years, ever since the much to be regretted premature disclosure of the original discovery, and when at last the final statement comes through the pages of the *Deutsche medicinische Wochenschrift*, it seems almost a pity that Koch's six years of silence was ever broken at all.

From his original product, which he names simply Tuberculin, Koch has derived three preparations which he calls respectively Tuberculin A, Tuberculin O and Tuberculin R, or, by abbreviation, TA, TO and TR. TA has only theoretical interest, TO differs not greatly from plain Tuberculin, while TR possesses whatever virtues have been revealed as the result of the investigations. These virtues resolve themselves chiefly into the negative advantage that the new product is likely to do much less harm than the old one did. Its use in tuberculous subjects is followed by a much milder reaction than that from plain Tuberculin, and Koch says that after using it in a great many suitable cases of tuberculosis and particularly of lupus, he has found that without exception improvement resulted from the treatment and in a greater degree than followed the use of Tuberculin or Tuberculo-Antitoxin. He lays stress upon the word "improvement," for he does not claim that any cures have been accomplished, and when he speaks of the use of the remedy in "suitable" cases he means those where infection is due to the tubercle bacillus alone as distinguished from cases where streptococci also are present. Koch says, and with justice, that it cannot be expected that immunity against the bacillus tuberculosis should also mean immunity against the streptococci and other microörganisms, but this evidently restricts the application of his remedy within very narrow bounds, as is further demonstrated by the clinical rule he lays down that where the temperature rises above one hundred and three-fifths degrees (38C.) the case may be considered one of mixed infection and unsuitable for treatment with the new product.

The published account of the Tuberculin derivatives is very long and consists largely of a technical description of the various steps by which the final results were arrived at, including an account of numerous excursions up "false leads" as they would be called by miners, taken by Koch and his assistants during their prolonged and laborious investigations. These descriptions, while interesting and valuable chiefly to the bacteriologist, must arouse the admiration if all from their revelation of arduous tasks often pursued under circumstances of the greatest discouragement. So little is known of the regions in which the bacteriologist is carrying on his explorations that he is worse off than the wanderer in a trackless forest or at sea in a boat without a compass, since there are not even sun, moon or stars to guide him who would study the natural history of the microbe. Experiment after experiment must be made, now in this direction and now in that, with the promise that at least ninety-nine will fail to one that succeeds.

The chief object of Koch's experiments was to obtain from the bacilli an easily absorbable product. The microörganisms themselves are surrounded by a covering of fatty acid that interferes with their absorption. After trying in numberless ways to get rid of this covering, Koch hit upon the following method which resulted in the manufacture of the new products. He pulverized thoroughly dried cultures of young and vigorous tubercle bacilli in an agate mortar with an agate pestle. The powder thus obtained he mixed with distilled water and put into a rapid centrifugal machine. After a time the mixture separated into "an opalescent but translucent upper layer and a muddy sediment." This upper layer is TO while the sediment, after some further treatment becomes TR. Koch warns against the danger of inhaling the dust from the dried bacilli during the process of pulverization, a danger which he considers to be by no means trifling.

CORRESPONDENCE.

WHAT IS INSANITY?

Editor of NORTHWESTERN LANCET:

SIR: What is insanity? What is the purpose of our hospitals for the insane? Are there large numbers of our people in these hospitals who do not need or deserve to be there?

The recent current criticisms, largely started in connection with the question of a new hospital, move me to again assert (now that political bias cannot be inferred) some corrective ideas. I know that some of the writers and speakers have never seen, and most of them have never studied the insane or the hospital life, but as their writings and speech form public opinion none the less truly, we must needs accord them full consideration with those of the most careful student.

The first question is, What is insanity? I must needs reiterate my statement of some years ago that publicly and practically considered, and especially as regards sending the patient to the hospital, insanity is determined, *not* by the degree of mental perversion, but by the permanence and obtrusive character of such perversion. Briefly and bluntly stated, the word insane is applied, and a hospital commitment decided upon, by reason of some trouble which the mental state causes, and not by the degree of mental change. Partly for this reason such of the relatives as were not living with the patient at the time of commitment will at times assert to us that he is not insane, or perhaps simply hint that he may not be, or at least write us asking if he "really is insane." Indeed, in a few instances in the past attendants upon a patient, not knowing the trouble which he has caused, have asserted him not to be insane.

This leads us to assert as positively as we can, and in accord with our definition given, that because a mental weakness is senile weakness, it is none the less insanity and none the less deserving commitment if making as much of the trouble as above mentioned. (Under trouble we must include fear of actual trouble). Again, because a person has always been "about as he is now" (a common expression), being usually in a condition deserving the name high grade imbecile, he is none the less insane, and none the less deserving commitment, if fulfilling the same condition. Because he can talk ordinary well; because he has no delusion; because he never raved or was incoherent; because he is much more intelligent than those sane people who are about him; because he is mentally weak, instead of raving or deluded; because he is any or all of these, he is none the less truly called insane and committed, if his mental perversion be the cause of trouble to society about him. Yet all of these are frequently claimed, unwittingly and they are the real foundation for the newspaper comments so frequently noted.

As to one of the above classes more especially, the one designating patients having a trace of imbecility, it is largely composed of young people from fifteen to thirty, who, weighed down by a poor constitution in the beginning, have always been rather dull, or quiet, or queer, or slightly melancholy, who probably have no known delusions, who answer coherently, and who "seem all right." We receive a great many of this class during the latter years. A few of them have concealed delusions and are really paranoiac. Chiefly, however, they show a slow, progressive impairment, and have finally drifted into a hospital commitment as the climax of the continuous repetition of some "trouble" above mentioned. One of them had troublesome sexual tendencies and was feared. Several got along well except when they would get liquor. Several had been to the Reform School. Usually, however, there is manifest only weakness of judgment and silly behavior. Although rarely so credited, yet the expression "high grade imbecility" gives a fairly accurate description of their condition. Of course, we only get a few of these cases, those who have not made especial trouble or annoyance remaining outside.

We occasionally also get a patient in older life in whom the appearance of sanity is yet unbroken, yet whose judgment is undermined by alcohol or other causes. He is usually a case of mild dementia. We get those of senile decline who have a fairly sane appearance. All of these come to us, however, when they have caused some trouble or fear in society about them. It is therefore true that many a man outside of the asylum walls is more insane, according to expert standards, than a certain few who have been committed, the latter having been committed because of some disturbance caused. Moreover, this disturbance usually lasts a long while before relatives, physicians, and judge of probate agree upon a commitment.

Secondly, what are hospitals for? Or in other words, are the people merely making them means of convenience in getting rid of the care of their friends? In answer to this, I can only say, "certainly." The hospitals in the state are for the very and only purpose of ridding the people of the care of their relatives and friends. It is recognized that the expense and difficulty of getting expert nursing, medical attendance, etc., in the patient's home, together with the definite duration of the ailment, makes it a task so much heavier than the ordinary as to deserve equalizing. It is wholly a matter of convenience and charity; of taxing the many to do cheaply for the few what the few could only do for themselves at unbearable expense and effort.

A subordinate object, real though not often noted, save in regard to the School for Imbeciles, might be mentioned. The separation of family prevents the birth of very many defective children. In this state from 1,200 to 1,500 families are constantly so separated.

The third question, Have we large numbers of people who should be sent back to their counties or homes, has been largely answered by the preceding consideration. The answer is both "yes," and "no." Almost any case can be forced back, almost no case can be sent back without causing some trouble, nor to live as quietly as here. Even the best of them are here under legal control and a net-work of rules. At home or upon the county, drink, wandering, sexual complications, chances of suicide, or of injury to others or to property, wasting of their own property, irregular diet and sleep, can with extreme rarity be avoided. Thus the conclusion in my opinion is that only occasionally is there one that should be sent back, and that that occasional one might possibly be incurably insane, providing only that he be harmless and has a proper home to go to. In our population of 1,200, I do not think that, aside from six or eight convalescing cases, we have a dozen others whom I would want to recommend to be so sent away, and from some previous experience, I would expect one-half of these twelve to be returned to us within a year in much worse condition than that in which they went out.

Finally, and a little aside from these questions, the colonizing scheme (the providing of a colony large enough to afford all the ordinary occupations and living "as if at home") can be applied much more broadly than in its usual application to epileptics. The high grade imbeciles mentioned above, certain of the paranoiacs, a small proportion of seniles and chronics, and a host of inebriates throughout the state can be so included. To the inebriates the idea affords a local prohibition, to the intelligent insane, namely the epileptics, high grade imbeciles and certain of the mild senile and chronic cases, it means local control and oversight. To the perverts or reform school class, it means certain restrictions.

Colonizing schemes, however, open up questions of broad charity at a time when to maintain present charities is an effort. They are questions to work forward to in the future, unless indeed ideas involving "prevention" grow the more rapidly. Prevention of drinking to avoid the present deluge of hopeless inebriety, prevention of the marriage of epileptics and imbeciles, are among the series of questions that will surely come up some time, even though we hardly expect to live to see it.

R. M. Phelps,
Asst. Supt. Rochester State Hospital.
Rochester, Minn.

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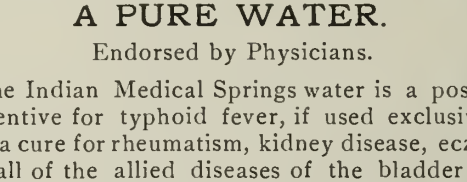

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LECTURES AND ADDRESSES.

SURGERY OF THE PAST AND PRESENT.

An Address Read before the Plymouth Club, April 23, 1897.

By H. McI. Morton, M. S, M. D.

Ophthalmologist and Otologist to the St. Barnabas Hospital.

Minneapolis.

To him who, in the love of medicine, arouses himself from the lethargy of indifference to an earnest desire to learn of her genesis, her trials, her retardments and of her glorious advancement, is given truly a great labor, yet one attended by rich reward. It is perhaps not unfitting that we should compare his task to that of the adventurous explorer of some mighty river; for its source, like that of medicine, oft lies beyond his keenest discernment and most anxious investigation amid the dim recesses, the gloom and uncertainty of the primeval forests of the past. And yet, from the myths of the incomprehensible ages of man, he beholds the stream, now but a narrow thread, swell to the irresistible and mighty river. He will observe, like the explorer, that progress at times was by great leaps over the walls of superstition and bigotry, yet but to fall into the stagnant pool of decadence, perhaps long to remain ere it emerged to continue as a stately stream. From the dim dawn of history, from the time of Egyptian Isis to the god Æsculapius and the father of medicine, his descendant, Hippocrates, from Hippocrates to Galen, from Galen to Paracelsus, and all through that great mediæval period of history, until the beginning of the present century, medicine and surgery had been fastened too closely to the blind goddess superstition, and had risen to no inconsiderable height at times to fall again and again to the low plane of the astrologer and alchemist, from which in very truth—it is sad to bear testimony—never yet has she completely unbound herself. To that great nation whose people, long before the dawn of authentic history, passing from a mythical Atalantis of the Indian Ocean to that great country of the Nile, and to whom we look for the first knowledge of the past, we must turn—and not without rich reward--that we may learn of primitive medicine and primitive surgery. So, dimly seen through the impenetrable mists of the past, we behold, through means of inscriptions, mummies and papyri, the shadows of the figures who, so far as we yet know, were the sources from which have come down the great and magnificent results of the splendid present. At the time that we first know of the civilization of the Nile, it must have been at its zenith, for such culture and art are the consummation of many thousands of years, so that even farther than *their* hands have recorded must have extended back, for great epochs, a medical literature and a medical practice.

We learn that as early as 3500 years before the Christian era the Egyptians were skilled in medical science and in the surgical art, and as but to mock us with our boasted civilization of today, it teaches us that the aphorism "history repeats itself" is but astonishingly true, for in their day we learn that medicine was divided into branches or specialties, and the limiting oneself to that branch was imperative. They had knowledge of many of the diseases that we are familiar with, and the surgery of that day had attained to no little eminence. The oculist and dentist, the gynæcologist, and many others showed much skill. It is, however, true that in those days, as well as through centuries after, medicine was closely connected with priestcraft, with charms, with spells and with amulets.

Baas informs us that "in surgery, and especially in operative surgery, the physicians of the warlike Pharaohs accomplished considerable and obtained results fully capable of refuting the denials of this fact dictated by the self-sufficient national vanity of the old Greek writers. They bandaged suppurating ulcers (upennu), practised venesection and cupped by means of horns sawed off near the point. They performed circumcision, in accordance with the precepts of their religion, using apparently knives of flint, and they also practised castration by crushing or pounding the testicles, and more rarely with the knife. In fact this latter operation was performed with such success and dexterity that, even as late as the Roman period, most of the eunuchs were supplied by Egypt. They practised lithotomy with a dexterity preserved as a secret, and, indeed, performed amputations, as pictures found at Thebes and Denderah testify. In ophthalmic surgery they were especially skillful, and it is highly probable that they even operated for cataract. Imperfectly united fractures and artificial teeth have been found in mummies—the latter an evidence that dentistry and dentists are, at all events, as old as the coquetry for which Egyptian women were notorious. From the preceding remarks we might infer that the Egyptians were experienced in the construction and invention of instruments; but, in addition to this, a great number of surgical instruments have been actually discovered."

The land of the sacred Ganges, as well as that of the Nile, many centuries before the Christian era, had made great strides in the healing art. They were acquainted with numerous diseases belonging to the department of surgery, as fracture, rupture, ulcers and abscesses, and treated them quite rationally.

"In the line of instruments, scalpels, forceps, specula, saws, needles, moxas, the actual cautery, enema syringes and animal bladders fitted with tubes, by means of which injections were made into the bladder, just as in the present day, etc., are shown, but the hand is very properly distinguished as the best of all instruments. In respect to form, too, instruments are adapted to the requirements of every operation. Operative surgery attained such a position among the Indians that they did not shrink from the greatest and most difficult operations."

Availing myself of liberties imperatively permitted by so brief a consideration of so comprehensive a subject, I will pass over many thousands of years, from the discussion of the medicine of the earliest civilization of the East and of the Nile, to that of Greece. Here we behold the marvelous influence of the Greek mind, reconstructing, systematizing and augmenting that which had in a more crude form been handed down from the centuries before them. Even at that day, we learn that the semi-mythical Æsculapius was through the surgical art delivered from the womb of his mother, Coronis, the wife of Apollo. To speak of the medicines of the ancients is to speak of his descendant, that noted member of the Æsculapiade, Hippocrates, who lived about 400 B. C. The Æsculapiade were medical guilds, and claimed descent from Æsculapius. Hippocrates was conversant with many surgical diseases, their treatment, and with methods of medical diagnosis, prognosis and treatment, that died out at the time, 400 years B. C., which were lost sight of, not understood, and not applied all through the subsequent centuries, until the eighteenth and nineteenth. At the time this remarkable man lived was the era of the highest political, artistic and literary grandeur of the Greek nation, and he was not only one of, if not the foremost philosopher of his day, but anticipated by more than two thousand years some great truths of medicine and surgery, and applied them to his suffering fellow countrymen. It is true that his medicine was much intermixed with philosophy, and oftimes rested upon a falsely assumed basis. His pathology was but crude and based upon an assumption of the existence of humors, the cardinal ones being yellow bile, blood, mucus and black bile. He carefully considered the cause of disease, tracing it to natural and not to mystical and unnatural agents. His diagnosis was remarkable, when we learn of his appreciation of diseases of the heart and lungs by use of the ear applied to the chest, as in this day. His observations upon the phases of disease were indicative of a true and remarkable scientific attainment which, particularly when we consider the age in which he lived and the obstructions thrown about him, was a rare genius indeed. He was familiar with the dislocations, and his observations upon them are applicable today in many cases. His diagnosis of fractures was proper, his knowledge of the manner of repair was correct, and his method of treatment rational. He understood the relationship between injuries of the head and the resultant forms af paralysis, he possessed a quite comprehensive idea of diseases of the eye, and all this some four hundred years before the Christian era. He used bandages, poultices, blisters, and the hot iron to cauterize. About the beginning of the Christian era some bold spirits began to add to the medical knowledge by dissection, and later, Aristotle gained for himself great renown as a medical philosopher, though neither he nor any of his successors, until more modern times, possessed the culture and scientific attainments of the great Hippocrates who, even while he lived, gained the title of "The Father of Medicine," a title which he justly holds today.

Some two hundred years after Hippocrates we see at Alexandria, and at home in Greece, great schools of medical learning, where thousands of students gathered. The one at Alexandria was but the outgrowth of the Greek spirit, carried by Alexander to his successors, the Ptolomies. About th great school of Alexandria were gathered great museums, one of which is declared to have contained seven hundred thousand rolls of papyrus, and valuable anatomical and botanical specimens. The University of Alexandria was the greatest factor in the educational life at that time, extending its influence into Arabia, and for centuries after exerting a salutary effect upon the Romans, whose medical acquirements were but a reflection of their neighbors and teachers, the Greeks. For the first few hundred years of the Christian era, and indeed subsequent to this, medicine was divided into schools. These were in truth medico philosophic guilds. Prominent among these was the Eclectic School with Claudius Galen as its leader, about 200 A. D. He may be said to have belonged to the Hippocratic school, as he doubtless more nearly earned the distinction of being nearer in his attainments and genius to Hippocrates than any before his time. In many things he was much more scientific than Hippocrates, and was the first to establish experimentation as a basis of demonstrating medical truth. He learned much of anatomy, and demonstrated the influence of the nerves upon the muscles, besides making other discoveries which were steps far in advance of all previous work done. For many hundreds of years, even to the sixteenth and seventeenth centuries, the progress of medicine was slow, in fact rather retrogressive than progressive. Medicine and surgery, during the middle ages, seem to have been the red cloth which attracted the elements of superstition and bigotry, with their own mother, ignorance, and not only attracted, but for years seemed unable to cast them aside. Amulets, charms, spells and mysterious potents were the agents of the so-called doctors of those times, who were, in the truest and most comprehensive sense, fakirs and charlatans who lived to profit out of the credulity and ignorance of the people. Medicine, among whatever little better class there was, existed as a series of mystic symbols and absurd laws, which to their propagators formed an excuse for grouping about them unnatural and unrational "systems." There was not scientific deduction from facts, and few of the latter as had been in the time of Claudius Galen. If I may trust to your kind indulgence, no better illustration of this can be given than the citation of two or three formulæ from many used by the alchemists of the fifteenth and sixteenth centuries.

The following is extolled for its virtue in curing the deaf:

We are to "take Snakes, and Adders equal parts, when they are fat, which is in June or July; cut off their heads, and tails, and take off their skins and unbowel them, and put them into a Glass gourd, and pour on so much of the pure spirits of Wine well rectified, that it may cover them four or five fingers' breadth; stop the Glass well, and set it in Balneo, till all the substance be turned into an Oyl; which keep well stopped for use. This Oyl doth wonderful cures, in recovering hearing in those that be quite deaf, if a drop be nightly put into the Ears."

Again, for gout, we are enjoined to "take of Bear's feet a pound, distil in a Retort and rectifie three times; then to this put the mother tincture of Saffron, Rosemary, Sage, and the spirit of Wine fortis, of each three ounces; mix well togeather and let remain in warm ashes for the space of a night; then strain and pour off the oyl and put four ounces of best pure beeswax while hot and mix quickly."

And what may be a valuable suggestion for the prevention of infectious diseases, is the "Elixer of Mummie," which is to be made as follows:

"Take of mummie (viz. of Man's flesh hardened) cut small, four ounces. Spirits of Wine terebinthenated, ten ounces, put them into a glazed vessel (three parts of four being empty), which set in Horse dung to digest for the space of a month; then take it out and express it, let the expression be circulated a month, then let it run through Manica Hippocratis; then evaporate the Spirit till that which remains in the bottom be like Oyle; which is the true Elixer of Mummie."

And lastly these learned apostles of Æsculapius, of Hippocrates and of Galen inform us that those afflicted with fevers will find a sure relief in the "Spirit of Human Skulls," which is concocted in the following manner:

"Take of human skulls without bruising them, only breaking them into pieces, lay them piece by piece upon a net spread over the wide mouth of any vessel, being almost full of water, and cover this all with another vessel very close but with vent, and then make the water boil and keep it boiling three days and three nights; and in that time the bones will be as soft as cheese; then pound them fine, and to every pound thereof add half a pound of Hungarian Vitrol uncalsigned, and as much spirits of Wine as will make it into a soft paste. This paste digest in a vessel Hemetrical sealed the space of a month in Balneo, then distill in a Retort in Sand, till all be dry, and you shall have a most excellent Spirit."

Enough to illustrate the degradation into which medicine had fallen in the middle ages, and, sad to relate, the lot of medicine has been, even to the present day, to carry many of the corporeal warts and pus cavities (the quacks and charlatans). Even in the time of the great Louis XII., that eccentric monarch who, while having the power to mould disunited and warring states into a solid France, had his astrologer.

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(To be continued.)

ORIGINAL ARTICLES.

CRIME AND INSANITY.*

By Arthur Sweeney, M. D.

St. Paul.

Dr. Oliver Wendell Holmes once said, "The time to call in a doctor is two hundred years before the patient was born." He recognized the helplessness of the individual in the face of heredity. He saw the feebleness of environment in changing the psychical and physical basis of a human being. We are, we are told, endowed with understanding and free will; we can act or refrain from acting. We have conscience as a standard to which we can refer all things. Is this absolutely true? Are there no limitations? Are we absolutely the arbiters of our course in life? If there is a physical basis of mind, do not its powers vary according to the development or defect of that basis? If the physical basis is diseased, can we then have understanding and free will, and are we as responsible for our acts as if the conditions were different?

I do not intend to define insanity. Who can tell when daylight ends and darkness begins? Who can definitely set the limits of that twilight of the mind in which a portion of mankind gropes? And can we rightly judge of the nature of, or responsibility for, an act unless we know whether it was conceived in the semi-darkness of degeneracy, or in the broad sunlight of perfect mentality? On the other hand, a definition of crime, in its ethical sense, is almost as difficult. Legally, a violation of the law above the grade of misdemeanor is a crime; but morally the aspect is something different; it is the violation of the moral code.

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* Read before the Ramsey County Medical Society, April 26, 1897.

Law is supposed to be the means of preventing injury to society by the vicious propensities of individuals. Morals concern the individual in relation to his higher self, or soul, and, incidentally, society in general. To steal the property of another in a certain manner, is a crime against law. To steal it in a different manner is not a violation of law. But in both acts a crime against morals is committed. For illustration, the stealing by force of a purse is manifestly a crime against law; to steal the contents of the purse by taking advantage of a combination of ownership of coal mines and exacting an exorbitant price from the consumer is "a sharp business transaction" and not a crime under the law. But in the realm of morals, both acts lie in the same category.

In dealing with the subject of crime I realize its limitations, for most of the crime is not discovered, and most of the crimes committed are violations of morals rather than of law. A bank president, who speculates with the funds of the depositor, and wins, is an "astute business man," a "leading financier;" when he loses, society is shocked to find that he is an embezzler. The hardened, ignorant criminal is known for what he is, and law and society have no compunctions of conscience over his disposal; but another hardened, but crafty, educated, polished criminal, who knows how to steal without being found out, presents a problem yet to be solved.

Recently a man of fair education and address, with a history of insanity in more or less remote ancestors, whose father suffered from a nervous disease, and whose brother had recently been under treatment of an alienist for delusions of suspicion and persecution, was arrested on a most heinous charge. It is shown that he has been dissolute, was a confirmed gambler, that he incited the burning of a neighbor's barn "to see the fun and test the nerve of his accomplice," that he discussed with various people the different ways that a murder could be committed, that he made offers of money to certain people to become his accomplices, that with cool business calculation he made it possible to obtain money by committing a crime, and that he prepared for himself an almost perfect alibi. The crime was committed and a woman murdered, one with whom he was on terms of apparent intimacy and friendship. Circumstances led to his arrest, and throughout the entire trial he betrayed absolutely no feeling of remorse or regret. He was found guilty, and yet no evidence was shown, up to his death on the gallows, of more concern than if he had destroyed the life of an insect which troubled him. What was it, moral depravity or insanity?

A child of nine years, the daughter of a man who is consumptive and a woman who has a marked neurotic constitution, early displayed signs of precocity. She was quick to learn, active in her mental and physical habits, vivacious and bright in her play and reasonably serious in her work. But it was also early noticed that she was wholly devoid of truthfulness; that she was utterly unreliable; that she would steal things which gratified her from her playmates: that she would, with great cunning, take money from her mother's purse to buy candy and playthings. Later she delighted in giving pain to dumb animals, and would take pleasure in killing birds and kittens, and torturing larger, but equally inoffensive animals. Then frequent complaints came from her playmates, whom she had cruelly and wantonly abused and beaten, and as a culminating evidence of her tendency, she fastened a small chain about one of her brother's ankles and twisted it until the blood came, meantime showing signs of the greatest pleasure at the horrible sight. Yet the greatest care from early life had been taken to instill into her growing mind all the virtues of childhood, and by the usual system of rewards and punishment she had had demonstrated the consequences of evil and the benefits of good. Her parents brought her to me in great distress of mind and asked: "Is it moral depravity, or is it insanity?"

A sane action depends upon the perfect adjustment in physical relation of the faculties of apperception, judgment and will, influenced by the proper education of the individual and adaptation to his environment. The necessary result of such a condition is what we call sanity. Defect in these three faculties influences, in proportionate degree, the sanity of the act. If the perceptive centres are defective, he is not then in perfect comprehension of his environment and is deprived of the power properly to exercise judgment and will. If the judgment (or reasoning power) is defective, his actions cannot correspond to the normal standard. If the will is defective, and he is unable properly to act, or to refrain from action, he is insane. The proper education of the individual and his adaptation to his environment, are not absolutely necessary to sane action, but they determine, in a measure, the quality of the act, and his ability to appreciate the relation in which he stands to his environment.

These faculties enable one to acquire other qualities. Some spring up from hereditarily acquired tendencies, others are the result of experience, and some of both. The individual is, in a measure, a composite photograph of his remote and immediate ancestors, and his tendency, or direction of mind, is apt to be largely influenced by the special directions in which his ancestors have developed. These tendencies, however, in the individual are largely subject to the effect of education and environment. Morality is one of the last acquired and easiest lost of these qualities. It is not presided over in the brain by a special centre, nor is it an inborn intuitive quality inspired by the creator as a quality of the soul. If it were so, morality would be the same under all conditions of environment. The bushman of Australia, the woman of the Ganges, the cannibal of Fiji, the Japanese and the American would have the same standards of right and wrong, just as the same races have in common the faculty of hearing, of smell, of sight. If it were otherwise, it would be moral to eat one's own kind, to have a harem, to sacrifice life to idols, and to do a thousand things which we condemn. But believing that morality is dependent upon training and experience, that it is the education of the mind to the knowledge of right and wrong, and the possession of will and ability to cleave to the one and forswear the other, we must believe that it is, in a large measure, dependent on physical conditions, and must degenerate with retrograde processes of its physical basis.

We can conceive of conscience as a gift, or quality of the soul, the mentor of the spiritual life of man, by which he is provided with a standard of right and wrong. The child and the savage have alike an intuitive knowledge of evil and good. But it is capable of development, as the mind advances in intellectual power. The conscience can be developed beyond the capacity of distinguishing between good and bad in an abstract manner, and becomes keen and susceptible so that it can apply its standard to the various concrete acts of life in their complicated detail and intricate adjustment. So on the other hand, the conscience may be dormant, undeveloped or dulled, according to the persistence of a state of ignorance, or the accident of evil and depraved surroundings and habits.

Assuming that the mind is physically perfect, that the various centres of intellection are not disturbed in their relation, we can conceive how without education, discipline and experience one's capacity for distinguishing the various complex relations of life and judging them by the standard of conscience, is a task almost beyond his powers, and that while the consequent action may be moral *per se*, and in relation to the individual, yet in relation to society the relation may be grossly immoral. But assuming that by congenital defect, or degeneracy, the powers of the mind are abnormal, that there is a defective perception of the environment, that the judgment is congenitally deficient, that the will is undeveloped, conscience becomes of little service in determining the quality of the act, since the mind itself cannot properly present the contemplated act for its arbitrament. So that in judging, in a concrete sense of the morality of an act, we must necessarily presume that the physical basis of consciousness is perfect.

But it is a matter of common knowledge that the accidents of child-birth, the pressure of a little blood on a baby's brain, the occurrence of a serious sickness in infantile life, may cause arrest of development of the brain and transform the child which would be otherwise bright into an idiot. We know how the stigmata of degeneracy, transmitted by the ancestors to the child stamp upon its physical being the deformities which influence and are a part of its mental organism. We realize how little it is in the power of the child to rise above the burdens of heredity and to make its mental and spiritual future assume a shape other than that of the mould in which it has been cast.

There are two important factors in shaping the life of individuals; the first and most important is heredity, the second is environment. According to these two factors is determined absolutely the physical and mental qualities of the individual. One is beyond our control, the other sometimes within our control. The genius of Beethoven or Mozart was not acquired. Michael Angelo's marvelous art was not the result of his education; Washington's integrity, courage and military genius were inborn. Shakespeare wrote classics because he could not write rubbish. Great men are those who are born with perfect adjustment of their mental mechanism, in whose environment were adequate opportunities for development. Others, having equal mental gifts, but lacking the opportunities for development, never reach beyond the level of mediocrity. In the same degree that great men are not responsible for their greatness, the vicious are often not responsible for their vice. Were the descendants of Margaret Jukes, the vicious progenitor of six generations of murderers, prostitutes, thieves and idiots, responsible for their crimes? Were not their innate tendencies in a vicious direction absolutely uncontrollable? Could they be expected to be otherwise than that to which they were born and bred? Must not we regard as manifestations of atavism the fact that any of her descendants escaped the jail and the gibbet? In what degree were they responsible for their environment? They were, with very few exceptions, brought up in an atmosphere of vice, ignorance and depravity, and if we regard the moral sense as an acquired one, certainly nothing in their environment was conductive to its development.

In the large cities of this and other countries we see the same influences at work. We find in America a constant increase in the proportion of native born criminals, the result of the unhealthy mental atmosphere which our present social system generates. Sporadic crime among native Americans of this generation is largely increased over twenty years ago, and will produce in the succeeding generations, unless the correcting influence of better environment is applied, a race of habitual criminals. Among the foreign born criminals there is undoubted evidence of the transmission of hereditary tendencies to crime. In a recent investigation on this subject in the Illinois States Prison at Joliet, the subject was studied exhaustively and the influence of heredity was conclusively demonstrated. It was also demonstrated that in a very large proportion of habitual criminals the physical stigmata of degeneration were present, as well as many of the mental marks, such as epilepsy, delusions and hallucinations, deficiency of mental power, and arrest of mental development.

It was my privilege a little while ago to examine a convicted murderer, and to learn the history of his life. His ancestry for two generations revealed a history of epilepsy and insanity. His head bore many marks of degeneration, the low broad vault of skull, asymmetry in facial development, retreating jaw, high arched palate and sunken eyes. His early life was devoid of educational advantages, being spent as a newsboy, book-black and messenger boy. When thirteen he was driven from home by his step-father, and obtained a precarious living by working in saloons. He was a petty thief at fourteen, a burglar at fifteen, a highway man at seventeen and a murderer at nineteen. He said he knew it was wrong legally and morally to steal and to kill, but asked "How could I help it?" In law he was responsible for his act and he paid the penalty on the scaffold. But in the Great Court where his case shall stand in the true light of all the facts, may there not be a different verdict than that rendered by the jury. Was he morally responsible? Was there no underlying force pushing him irresistibly on to crime? Did not his ancestors who stamped him with the physical marks of a degenerate being and with mental instincts and tendencies of a defective, drive him to that course of life as inevitably as the physical and mental tendencies of Mozart impelled him to music, or as the intellectual gifts of Shakespeare caused him to inspire the world by his genius? It may be objected that the State provides means of education, that the law protects all persons in the pursuit of happiness, that the churches and Sunday schools afford means for cultivating the moral sense. That is true abstractly, but the fact remains that his environment was vicious; that his instinctive tendencies were opposed to good and that his character was formed by the time he was compelled to go on the streets. It is significant that among his companions were probably hundreds of boys with equal lack of education, the same vicious environment, who did not develop into a criminal. Why? Because the degeneration of mind, the hereditary tendency was wanting in them. In other words, he was not sane, inasmuch as through heredity, he had not the mental capacity to acqnire a moral sense even though environment had been favorable.

I believe that a very great portion of the habitual criminals are insane and are not morally responsible for their vicious life. I believe that habitual crime is very largely a disease, as is intemperance, and that the disease is insanity. It is true that men are supposed to have reason as their guide, and that the knowledge of right and wrong should cause them to abstain from the latter; but as a matter of fact, it does not. If a person frequently jailed for crime learns no lesson from his imprisonment, does it not show either that he is incapable of learning, or that his reason is so perverted that vice is more attractive than good conduct? The history of crime abounds with instances of the failure of imprisonment and punishment to teach morality. Nor is it to be expected under the present conditions that the moral sense, uncultivated during childhood, will bloom like a rose in the field of mature life.

Criminals may be divided into several classes: First, the criminal who commits crime under the influence of passionate impulse; second, the occasional criminal, who has an innate tendency toward crime, which manifests itself when the opportunity is offered; third, the habitual criminal, who is either weak and degenerate, or who manifests unusual cunning and foresight in his crimes; fourth, the instinctive criminal, who presents well-marked signs of physical and psychical abnormality; fifth, the imitative criminal.

The occasional criminal who, under the sway of violent passion, commits an assault, may be, and is usually, one of ordinarily good mental capacity, but, overwhelmed by some powerful emotion, such as revenge for wrong or insult, commits a crime for which he is immediately sorry and expresses profound remorse. This class of crimes is often met with, and is easily judged in its proper light by the jury and public. But among this class of crimes is also a very distinct subdivision, in which the mental state is not normal. I refer to epileptic furor, transitory or mania, and irresistible impulse.

The epileptic criminal is absolutely irresponsible for his act. He is unconscious, after the deed, that he has committed it, and is often vigorous in his denials until convinced, and is then penitent. His acts are automatic. During my student days an epileptic patient suddenly, while shaving, attacked his wife with a razor, and but for interference would have killed her. He had no recollection whatever of the deed. Joliet has two life sentence criminals whose crimes were undoubtedly committed in a state of epilepsy.

Impulsive insanity may give rise to crimes which are often classed under this head. A woman came to me a little while ago and complained of an almost irresistible impulse to strangle her baby, whom she loved dearly, and her distress of mind at the thought of such a contingency was pitiful to see. She willingly consented to separation from the child as a means of relief, and since then has had no trouble. This form of insanity is that which is illustrated by the tendency nearly every one has experienced when on a high building to throw himself over the edge. Scarcely any one can resist the necessity to step backward when he is conscious of this feeling.

Transitory mania has a greater standing in law than in medicine. I am inclined to doubt its genuiness, unless there are concomitant signs of physical or mental degeneration. We hear of it most frequently as a defence in murder trials, in which it is claimed that the defendant was insane at the moment of the deed, but sane immediately before and after.

Second. The occasional criminal has a tendency to crime which manifests itself when opportunity offers. This class is one in which responsibility is clearest, and upon which there is the most decided opinion as to the deliberate character of the offense. Opportunity plays the chief part, but as not all persons yield to opportunity, it is not unlikely that there may be present an original weakness of organization, or such absence of suitable education and environment as to sharpen the moral sense.

Third. The habitual criminal is of two varieties, as a rule; the one who is weak and degenerate, who blunders repeatedly into crime, and who is constantly between the jail and the trial court; and the one who is strong mentally, and who exercises considerable skill in the perpetration of his exploits, and adroitness in evading arrest. The former drifts into crime helplessly, the latter adopts it as a profession and as a field for the exercise of his natural powers. The former shows signs of degeneration, as a rule in his physical conformation, the latter lacks the corporeal stigmata, but possesses many in more or less degree, of the mental traits. The former class is represented in our city by the notorious "Jocko" Conway, a man who has given the police more trouble, probably, than any other dozen criminals with whom they have had to deal. He began his career of crime ten years ago when he was eleven years old by a petty theft. Since then he has been arrested over 140 times for various offenses, consisting of picking pockets, stealing overcoats, carriage robes, cigars, shoes, and, in general, any article he could lay his hands upon. He was seldom arrested for drunkenness, and never for assault, except upon officers who arrested him. His offences never betrayed any skill, nor did he ever evince any cunning in hiding his crime or evading arrest. He would steal in the presence of hundreds of people, when detection was inevitable, and would not be deterred by the unsalable nature of the article, or his difficulty in escaping with it. When arrested he habitually fought his captors, and was nearly always clubbed before reduced to subjection, yet he did not hesitate to tell truthfully all the circumstances attending the crime to the officers in the station house. During the past ten years he has not spent as much as one-tenth of his time outside of the jail or workhouse. He was sent once to the reformatory, but has never been sent to the State Prison. He is an habitual petty thief.

George Ellingsworth is another of this class. He was at one time a jeweler by trade, and a large proportion of his thefts have been of clocks and watches. On one occasion he stole a large and unwieldly clock, and a few hours afterwards was found asleep in a field a few blocks from the place of the crime with the clock striking the hours beside him. His sons are all criminals of the same order.

The second subdivision of habitual criminals represents the aristocracy of crime. They are safe-blowers, confidence men, desperadoes, burglars and highwaymen. In them occur few of the physical earmarks of degeneration, and their minds are peculiarly active, their powers of observation and their judgment well trained. They scorn petty crimes, and take pleasure in the difficulty of a job and in the detail of eluding detection. They regard their profession as an art, and try to live up to their ideal. Aside from that peculiar mental state which induces them to adopt and follow that means of livelihood they are apparently normally constituted. They can, however, be recognized on sight by those familiar with their ways. They are alert, suspicious, quick in their actions, guarded in their speech and have a gait that suggests control of muscular power, and a general expression of countenance that is apparently characteristic of their profession. This is the class so accurately described by A. Conan Doyle in his stories of crime.

Fourth. The instinctive criminal forms only a small portion of the population of the prisons, but they are the most dangerous to society and the most incorrigible. With them it is no matter of will or reason. They are criminals by heredity and by mental predisposition. It is as impossible for them to lead a moral life as it is for them to become musicians or artists. They possess entire stupidity or cunning. Their crimes either reveal the most startling ingenuity or the most apalling lack of motive or of skill. Those associated with them instinctively compare them to the animal they resemble: the fox, possessed of cunning; or the ostrich, that stupidly thinks himself safe when his head is covered. In this class the stigmata of degeneration are most constant and most pronounced. It is the class which Lombroso identifies with moral insanity.

Fifth. Imitative crime nearly always indicates a perversion of mind. The "biting nuns" of the fifteenth century, and the dancing mania of Aix la Chapelle are the characteristic episodes most studied in this connection, and show that the will is deficient, and that the victims were unable to restrain themselves from carrying out the ridiculous performances. Imitative crime, in my opinion, always indicates defect. When Norcross, with his bag of dynamite, had his celebrated interview with Russell Sage, a crop of imitators so numerous sprang up that scores of millionaires were guarded by detectives and their mails were burdened by countless letters demanding money or threatening some horrible form of death as an alternative. When Garfield was shot cranks of all kinds cropped out in large numbers, impelled and fascinated by the notoriety and doubtful fame which Guiteau acquired.

I do not wish to be understood to believe that only those convicted of crime show evidences of degeneration or defect. They have been proven to be criminals. What of the large class who have not been so proven—the uncaught thieves in high and low places, the "smart business men" who corrupt legislatures, who violate the sanctity of the courts and who operate trusts and unjust combinations of power and money for purposes of extortion?

In a recent magazine describing the methods of banking were several photographs of prominent financiers. Two of them would do credit to any of the types of degeneration which I have shown here tonight. There are no data yet at hand from which we can conclude that there is a greater proportion of crime among the lower classes than among the alleged better classes; but I feel that it is time to call a halt in the frequent assumption that the criminal class is made up exclusively from the poorer classes. It is true that there temptation is greater, because the want of all things is there greatest, but I believe that morality, in its best sense, is also there strongest and best.

The study of anthropology of criminals has been elaborated by Lombroso and others, and their results have been such as to determine beyond question certain physical signs which indicate degeneracy among habitual criminals, and which are claimed to be evidence that the criminal is a special type of man. Lombroso shows that the skull capacity of criminals is much less, or much greater, than that of normal individuals, and that this diminution is much more marked among thieves than among murderers; hence the inference that murderers are less highly organized than thieves. The criminal is nearer to the insane than to the sane in skull measurements. Degeneration shows itself, not only in the mental qualities, but also in the physical conformation of the body. In idiocy the occurrence of cleft palate and a highly arched vault of the palate is not accidental, but is evidence of the general arrest of the intellectual and physical powers. So in criminals that are degenerate and defective we find certain stigmata which go hand in hand with the mental development. Marked irregularity in shape of the skull, a greater development on one side than the other, predominance of the parietal over the frontal portion, excessive development of the supra-orbital ridge, enlargement of the orbital cavity, arrest or excessive development of the bones of the face, heavy and blocked shaped jaws, high arched palate, receding lower jaw and forehead, handle shaped ears, scanty beard and early wrinkles are some of the signs of degeneracy, a few or all of which mark the type of the criminal.

Heredity is an astonishingly powerful factor in the development of criminals as shown by statistics. Marro found a bad and insane heredity in 77 per cent.; Koch found morbid inheritance in 56 per cent.; Rossi found twenty-six cases of insanity in the ancestors of 71 criminals; of 4550 criminals in the Elmira Reformatory, drunkenness existed in the parents of 39 per cent. and probably in 11 per cent. more. Marro found that 41 per cent. of criminals had drunken parents, as against 16 per cent. for normal persons. The history of individual criminals is often startling. "The Kid," a notorious and dangerous thief, has an heredity of crime in father and mother and two uncles. His three brothers and two sisters are confirmed thieves, and together the family affords constant occupation for detectives and police officers.

The criminal in law has a different standing from that occupied by him in other sciences. In law he is a responsible being to be punished for his lapses from virtue, to be restrained from injuring society, and his capital offences are avenged in a manner that is supposed to "fit the crime." In medicine of recent years a distinction has crept in as the result of studies in anthropology and mental diseases, by which it is claimed that the crimes of a portion of the criminal class are the result of disease, symptoms of an abnormal condition.

Medicine does not claim that there is no wilful crime, that the occasional criminal, the criminal through passion, and sometimes the professional criminal is not thoroughly responsible; but it does claim that many crimes of these classes, as well as all cases of intinctive crime, are the result of conditions beyond the control of the individual, and that in estimating responsibility the facts of natural endowment, heredity and environment should have a great bearing upon the mind of the jury and court. The standing of the insane in law, however, is to my mind one of the reproaches of that learned and otherwise admirable profession. Two hundred years ago courts considered that a person of mature years who could not count 20, or who did not know his parents, or who could not be taught to read, had never acquired reason. They supposed that a person might lose his reason by the rays of the moon striking him. They called the one an idiot, the other a lunatic, and denied to them the responsibilities and rights of ordinary citizens. This rude division has in the main survived to the present day. The early courts, as in the trial of Hadfield and Oxford, in accordance with the erroneous notions of insanity then prevailing, distinguished partial from complete insanity. Defining partial insanity as "monomania," in which the accused is able to reason correctly concerning some things, but is unable to reason correctly as to others, they still held that partial insanity did not exempt from responsibility. The same course was followed in the McNaughten case in 1842, and the rule of law was definitely settled by the judges in answer to queries propounded by the House of Lords, that "it must be clearly proved that at the time of committing the act the accused party was laboring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was committing, or, if he did know it, he did not know he was doing wrong." This rule has been, I believe, the basis of law in this country, except in a few states, where the old common law procedure is followed.

To the medical mind this presumption on the part of the insane of knowledge of right and wrong is extremely distasteful. It is based upon the old belief of partial insanity, now utterly discarded as unscientific and illogical. We can hardly conceive any insane person, who is not in a condition of delirious mania or in the terminal stage of dementia, who does not know the difference between right and wrong.

The rule of law is such, as Lord Bramwell said in 1874, "that nobody is hardly ever really mad enough to be within it." Partial insanity is as incomprehensive as partial consumption. The mind is one essential unity and cannot be partially diseased. Monomania has been supplanted by the term paranoia. The former was meaningless, and defined simply "one mania." The latter recognizes the developmental condition of defect or degeneration, manifesting itself in certain directions, but tending always towards mental disintegration. The paranoiac is an insane man and suffers from a disease of the mind; but he knows right from wrong. He is able to distinguish the bearings of his act upon law and morals.

I had a paranoiac under my care last year who wanted to kill Mr. Hill and Mr. D. C. Shepard. He said he knew it was against the law; that it would be a crime against morals; that it would inflict pain upon the families of these men—but said that he could not stand their bad characters, and that society would be benefited to such a degree that the act would be justified. He regarded it as a "social necessity," and was willing to be hanged if he could benefit the community. On many other subjects he was entirely rational.

Dougherty, the so-called lover of Mary Anderson, murdered Dr. Lloyd, of the Flatbush Asylum, because he believed him to be one of the agents of a system of persecution that had done him injustice; and he was about to murder a justice of the Supreme Court and other officials, when he was fortunately arrested. All this murderous outbreak arose from his infatuation for Mary Anderson. Yet, when he was tried for the crime he denied that he was insane, and insisted on taking the witness stand himself to prove that he knew the difference between right and wrong, and the nature, quality and consequences of the act he did.

No matter how small the flaw may be in the mental machinery it may be quite enough to warp the mind.

Prendergast, the murderer of Carter Harrison, insisted that he was not insane; that he knew the nature and quality of the act—but that his justification lay in the benefit to the public that would come from defeating the ordinance for the elevation of railroad crossings.

The insane not only know the difference between right and wrong, but they are possessed of intelligence to plan the details of crime. They are influenced by a rational motive quite often, and they exercise wonderful control. A prominent alienist startled me once by saying that "there is infinitely more self-control shown within the walls of an insane hospital than outside"—which, on reflection, I believe to be true.

Paranoia is the form of insanity which is the most often the subject of medico-legal contest. It is the one on which law and medicine is most at variance, and regarding which the public has the most positive ideas with the least actual knowledge. It is against these cranks that public clamor is most often raised, and to whom the courts, apparently in obedience to the vox populi, are most apt to do grave injustice.

They are the insane who are most often judicially murdered. The disease is one of heredity, and is progressive through its various stages until it ends in mental disintegration. But it is seldom recognized by the public until some terrible catastrophe emphasizes the eccentricities, foibles and weaknesses of his former life. Yet read in the light of intelligent medicine, the crime is the natural resultant of the prior mental life, and the inevitable outcome of the diseased condition. The regicides of history were paranoiacs from Brutus to Guiteau. They are "responsible" according to law, but no one who really understands the symptoms of the disease, believes that their crimes are the result of sound mental action. They are the writers of threatening letters, the contributors to newspapers of extraordinary views on social, religious and political topics, the leaders of small bodies of fanatics who desire to reform the world, to correct abuses in the administration of government and to tear down the old and establish a new regime. They have played a distinguished part in the history of the world. Swedenborg established a new religion, but had visions (illusions) heard the voices of angels (hallucinations) and upon them founded convictions (delusions) which influenced his time and the religious history of the world. Joan d'Arc had also illusions, hallucinations and delusions which animated her throughout her phenomenal career, and yet in such a manner as to redound to the happiness of her country and the betterment of the world.

Suppose that Schopenhauer had never written his admirable works. He would have been considered as a moral monster and his fixed ideas of persecution would have landed him in an asylum.

Louis Riel, the half breed rebel, had visions of divine visitation and was guided in his political ambitions by divine inspiration. He was insane. No less insane was Guiteau, who claimed inspiration and wrote that he had formed a partnership with Jesus Christ & Company, "the strongest firm in the Universe."

J. Wilkes Booth, the son of Junius Brutus Booth, a genuine lunatic, though an actor of genius, who was a mystic, a religious enthusiast, was a paranoiac in face and in mind. Prendergast, the poor ignorant news boy, afflicted with megalomania, aspired to the position of corporation attorney of Chicago, though, like necessity, he knew no law, was declared sane by an intelligent jury after five of the most able neurologists of the country and examined him and testitified that he was insane. He was murdered by due process of law. These represent the extraordinary crimes of paranoiacs, those exceptional ones, who, by attacking public characters, attracted attention to their insanity.

But in lesser crimes how often is the poor eccentric lunatic who steals without motive, who assaults without reason, who shoots at inoffensive persons, hustled off to jail on a long sentence, as a perfectly sane and responsible being!

The question of the relative guilt of men for crimes is one that needs some consideration. Is the banker who, deceived by the fluctuations of wheat, decides that he is sure to make himself rich if he invests the money of the depositors in that commodity, and loses it, morally as guilty as the thief who steals a pair of shoes that he may pawn them and buy whiskey? Whatever may be the legal opinion of guilt, the former must be considered in morals the more responsible. The man who steals the shoes is, as a rule, ignorant and uncultivated, born to poverty and consequently to absence of extraneous factors that would restrain his vicious tendencies, unable, by the necessities of his situation, properly to educate himself, and a prey to the vicious influences with which the crimes of others surround the abodes of poverty. The one blindly impelled by a desire to satisfy a craving for whiskey, violated the law; the other, knowing full well the requirements and penalties of his position of trust, endeavored to gratify his desires for wealth, and violated the law. The higher a man climbs, the greater will be his fall. The more keenly alive one is to the knowledge of his duty, the more responsible he is for failure to perform it.

The question of responsibility for crimes is a very puzzling one, and I doubt very much if it will ever be settled by a rule of law. No definition of insanity was ever yet framed that would be comprehensive enough, nor yet sufficiently definite to cover all cases; and as we cannot set the limits to its manifestations, we cannot expect a perfect adjustment of the principles of law to it.

But really, is it important to do so? Is it necessary to distinguish in many cases of crime the particular mental warp and twist which impels the violation of law? Surely the object of law is the protection of society, and not punishment or revenge. In England, years ago, it was attempted to elevate the moral tone by making over a hundred crimes punishable by death. And while every crossroads possessed its gibbet, crime flourished with renewed vigor, because of the blunting of the moral sense by the frequent exhibition of dangling skeletons. Nothing is truer than that "familiarity breeds contempt." Punishment has never yet prevented crime, and never will. Why do we kill a rattlesnake? Not to punish him, surely, for he simply asserts his nature. So with habitual, instinctive and imitative criminals—they simply exercise their natural gifts; they travel in the direction in which heredity and degeneracy have turned them. The law is for the protection of society. Crime is destructive of society, whether voluntary or instinctive, whether the result of deliberation or of mental disease, whether the criminal is responsible for his acts, or whether he does not know the difference between right and wrong. The remedy for crime, in my opinion, is in reformation and imprisonment. The former may be efficacious in the prevention of sporadic crime and offences resulting from passion, the latter will simply protect society from all other classes. The habitual criminal himself need not be considered. The good of society is the only thing to be considered. If the individual has been convicted of a felony three times the danger to society from his presence has been demonstrated. Let him be imprisoned for life. If the individual is defective or degenerate, if he is insane and irresponsible for his acts, let him be detained in a hospital during the rest of his years—above all let him not propagate a race of degenerates and defectives. Imagine the farce of giving to Jocko Conway one hundred and forty trials by a jury of his peers! Imagine the farce of having allowed Guiteau for twenty years to walk the streets when his mind was filled with vagaries so strange that no one who came in contact with him could doubt his insanity! Imagine the folly of allowing Prendergast his liberty while he was writing cranky letters to the Chicago city officials for months before his crime! Let the test of law be not the knowledge of right and wrong, but rather mental capacity or incapacity. Our present method is crude and unsatisfactory. Determine whether or not the criminal is insane; whether or not he is a defective or a degenerate; whether or not his crimes are the natural and logical result of mental heredity and his environment, and justice to the criminal and to society will more nearly be accomplished than under our present methods.

INSANE AND CRIMINAL WOMEN.*

By Helen W. Bissell, M. D.

St. Paul.

Not greater or less, but differing to meet the needs of humanity, is the seal which our great Creator has placed upon man and woman. Beat against the barriers, both of design and equality, as we may, the unchanging truth remains; and it is by the clear understanding of its reasons and submission to its demands that progress, intellectual and moral, is made. The less forceful, persistent and varying methods of women are as necessary as the stronger, more direct ones of men, and both are needed for the first and great end of life, the care and education of the rising generations. The mutability of feeling and expression of woman are to meet the demands of childhood, while man's force is required in meeting the world in his efforts to provide for his family and home. These characteristics, which are noticeable in our quiet, well-regulated homes, are brought more prominently into view when the inhibiting power of either reason or morality are in a measure lessened or removed.

It was my good fortune to begin my medical work in a woman's reformatory, and then for seven years to be assistant physician in an insane asylum, which gave me an opportunity of observing under favorable conditions about 2,000 criminal and insane women.

The first thing that struck me on reaching the prison was the general air of submission in the women and the apparent inadequacy of the means of control. An eight-foot board fence with three horizontal stringers, which the women climbed and called their ladder, and light, crimped wire netting in the windows, were the only means of preventing escape of the greater part of the prisoners, though there was one part of the institution where there were some cells of the ordinary prison type. It was strange to see 300 women march down the long hall, where there was only a fly-screen in the front door to prevent their escape, and was one of the most marked evidences of sex I have ever seen. Men could not have been kept for five minutes under such a system of restraint.

Women are more restless in minor ways under control than men, but the height of violence is reached in throwing a tea-cup or in the pulling of hair. The histories of most of these women were pathetic in the extreme; parents, one or both, as a rule, dissipated, bad surroundings, and an education and temptations of a character to almost preclude the hope of any result but the one obtained.

The crimes of men are of a type to show an idea of personal gain or revenge—as robbery, arson or murder—while those of women are almost entirely of a personal nature, where she herself is the greatest sufferer. The attacks of excitement I have seen several of these women display were like nothing so much as transient mania, and some were watched for weeks before deciding whether they were simply uncontrollably bad or insane. As marked cases of mental obliquity as I have observed were displayed by two sisters, who, with five others, were daughters of one prostitute. Their moral sense seemed *nil*, and their manner of life was as natural to them as the air they breathed.

The amount which can be gained by suitable environment and education was shown by the marked improvement of the women who were kept under discipline from six months to a year. Of these a large majority left in a condition to earn an honest livelihood, and in Massachusetts today there are more homes open to these women than there are persons to take advantage of the opportunities. Out-of-door life and work on the farm and in the gardens seems the best calculated to restore equilibrium to a shattered physical and unbalanced moral condition.

Many of these marked traits were even more fully brought to my attention in my life in an insane asylum. I saw there the same restlessness with submission to authority, and the small number of escapes compared with that of men was marked.

Heredity, heredity, heredity! seemed to be the watchword of the place. Not by any means that of insanity alone, but the result of drunken and dissolute parentage, reinforced by the disadvantages that always accompany an ill-regulated home, which is in fact no home at all.

Moral responsibility for acts was continually before us, and at times most forcibly. Bridget D., æt. 19, servant, of ordinary intelligence, became in large measure rational after a severe attack of typhoid fever, but a tendency to destruction was so marked that it was impossible to keep her clothed in even the heaviest duck dresses. Through all her waking hours she tore and tore, making always the plaint, "I can't help it, I can't help it." Mechanical restraint was useless, for she destroyed with her teeth what was denied her hands. Finally she was given old pieces to pull and knot to her heart's content, while the attendants did their best to interest her in the ordinary ward work. After months she regained her normal condition. If her impulses had been homicidal instead of destructive, would not the courts have held her guilty? for no one recognized more fully than she the difference between right and wrong.

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*Read before the Ramsey County Medical Society, April 26, 1897.

A most interesting case, showing the influence of one patient over another and the restraining power of punishment, was seen in Kittie R., æt. 14. She had been for years uncontrollable at home, and finally was sent to the asylum for attacking her father with an axe. When Kittie came into the hall she gave vent to her feelings as usual, and it seemed impossible to control her by ordinary methods. Finally, one day, when she had been unusually demonstrative, Miss F., an elderly patient who had been watching her carefully, took her to one side and administered judicious but positive slipper discipline. Kittie was subdued at once, and after one or two more such experiences became quiet and comparatively well-mannered, and showed great affection for her kind friend who had so fully comprehended the situation.

Nellie P., a particularly interesting young woman, was the daughter of a professional thief and law-breaker; her mother had melancholia at the time she was born; her sister was melancholic, and her only brother was in prison. As she grew to maturity she had attacks of erotomania, when she would live in the most degraded manner. She was brought to the asylum in an excited condition and soon passed into a state of apparently complete dementia, remaining motionless week after week, paying no attention to her physical necessities. After a time she came out of this state, when the spirit of mischief reigned supreme. She would repeat long conversations that had been held in her room when she seemed oblivious to her surroundings. When I saw her first she was gentle and ladylike, but acknowledged to the attendants that at times the desire to return to her old habits of life was overpowering. Was she a free moral agent, and does not her history throw a flood of light on that of many another?

In Rhoda N. we had a window smasher of marked ability. Small, delicate in appearance, for months at a time she would be comparatively rational, when, at an instant and without provocation, a tempest would be upon her. I have myself seen her break ten or fifteen panes of glass before those who had stood by her side could prevent the destruction. For such acts I have never known her to be repentant, but they seemed to satisfy some imperative impulse of her nature.

In the quieter wards there were always a number of patients, who, to an ordinary observer, seemed rational and self-controlled, but who by their untruthfulness and general mental obliquity were mischief makers of the first water, and whose occasional outbreaks were as marked in type as unpleasant to encounter.

Here, as in the prison, the advantages, mental and physical, of regular employment were marked, and out-of-door life seemed more efficient than any other agent in restoring equilibrium. Of course violent patients could not be put to work at once, but as soon as expedient they were given something to do, and progress was rendered more rapid by occupation in the open air.

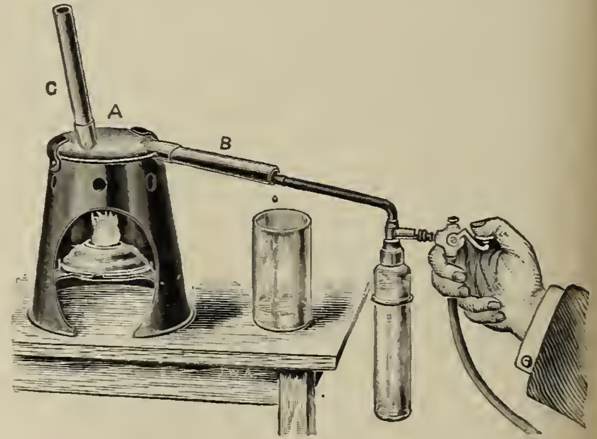
It is my belief that as science progresses the relation between crime and the loss of mental balance will become more and more pronounced, and that both will receive more intelligent consideration.

A MODIFIED STÖRMER'S INHALER.*

By H. Longstreet Taylor, A. M., M. D.

St. Paul.

Inhalation therapy has never been thorougly satisfactory, as its results fall short of expectations in the treatment of diseased conditions of the air passages. In this regard it stands somewhat in the same category as gargling, and for much the same reason. The gargle water does not come in contact with the parts it is intended to medicate, and neither does the inhalation, as a rule, penetrate to the lungs, but accumulates in the pharynx around the base of the tongue and the entrance to the larynx whence it is at intervals coughed away and spit out. The finer the spray, other things being equal, the deeper the penetration, and consequently the nebulizing machines are the best inhalers, but the amount of medicine used is very small and the amount that is deposited on the mucous membrane must be infinitesimal. For oily solutions such inhalers are very satisfactory, but not for watery solutions. Consequently when the



A—Closed hot air chamber.
B—Atomizing tube.
C—Inhalation tube.

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* Read before the Ramsey County Medical Society, April 26, 1897.

writer's attention was called some years ago to Störmer's inhaler, in which watery sprays were prepared for inhalation in an entirely new manner, it was gladly given a thorough trial.

In Störmer's inhaler the medicinal solution is sprayed through the horizontal part of T-shaped tube about two and one-half inches in diameter, while an alcohol lamp burns at the bottom of the vertical arm. There is no division or diaphragm between these arms. In this hot air the spray is converted into dry vapor, and passes on through a glass tube of the same calibre, somewhat more than a foot in length, and is inhaled by the patient as it leaves the tube. Any medicinal substance that was held in solution in the spray must return to the solid form when its solvent is thus removed. In weak solutions the particles thus precipitated are microscopical in size and weight and are carried on in the current of air as the finest of dust and can be inspired as deeply as the hot air can. Imagine for a moment the size of the particles of nitrate of silver which would be contained in the elements of a fine spray of a one tenth of one per cent. solution. The mechanical division of the fluid by the atomizer is very fine, but each particle is more than a thousand times bulkier than its contained solid, when their respective specific gravities are taken into consideration. That the material in solution is thus carried on by the hot air current in a condition of the finest subdivision, and not deposited in the inhaler, can be shown by holding a cover glass, with a thin coating of glycerine or cedar oil on its surface, in the current of air as it escapes from the inhaling tube. This cover glass will be found to be thickly covered with small specks of nitrate of silver if examined with a high power. The size of these specks increase as the strength of the solution is increased. This can be readily appreciated by taking a few deep inhalations with a weak solution and then changing to a two per cent. solution. The laryngeal irritation produced by the strong solution soon puts an end to further inhalations, although with the weaker solution the inhalations can be continued for some time.

Clinical results show that these inhalations attain the object aimed at, i. e., medication of the mucous membrane of the bronchial tubes. In the practice of the writer, numerous cases of old chronic bronchitis, not tubercular, some of which have been considered to be incurable, have been permanently cured by the use of these inhalations for a period varying from a few days to several weeks. The discharge of stinking pus from two cases of abscess of the lung, has been greatly lessened and the breath rendered odorless by their use. A number of acute attacks of laryngo-tracheitis have been quickly relieved by a few daily treatments.

The writer is not in position to make any positive statements in regard to its use in tubercular cases, as he has made but few trials of it on consumptives.

In view of the undoubted merits of the method, the writer has attempted to improve the inhaler, and offers to the profession this modification, claiming that it is a more efficient, durable, and convenient instrument. The spray is dried in a closed chamber. The products of combustion from the lamp cannot be inhaled, and a larger volume of spray is dried and less of it is lost in transit. The patient should be given a paper cone to inhale through and to protect his face with. It is much easier to give the treatment with the compressed air spray apparatus, but a hand atomizer can be used if preferred. The inhaler is especially adapted to the use of nitrate of silver, which after all is said and done, is and remains one of our most valuable agents in the treatment of mucous membranes. Numerous other agents, however, can be and are used in it. Iodoform dissolved in ether and the mixture rendered less expolsive by the addition of alcohol, has been greatly lauded in the treatment of grippe and in some tubercular conditions. In using this solution the closed chamber must not be allowed to grow too hot for the hand to be laid on it with comfort, or a small explosion will occur.

Besides these, carbolic acid, creosote, iodol, resorcin, eucalyptus in alcohol and water, thymol, guaiacol, iodine, etc., have been used. Noyes Bros. & Cutler will supply the instrument.

Lowry Arcade.

HOSPITAL AND CLINICAL MEMORANDA.

EXENCEPHALON *

The mother of the subject represented by the accompanying photographs is a healthy German woman about 40 years of age; has given birth to 12 healthy, well formed children. She has an excellent family history, and so has her husband. She gave no history of a marked impression during the early months of pregnancy.

When about four and a half months pregnant she slipped upon the ice, but regained her equilibrium, with much effort, before striking the ground. She complained more or less of pain in her right side from this time to the end of pregnancy.

The child was still born, but had given evidence of life only about an hour before birth.

I did not see the mother until the second stage of labor was completed, and have thought that had

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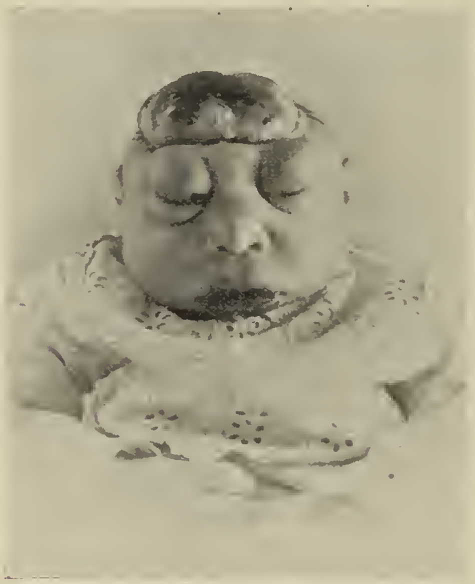
*Read before the Minnesota Valley Medical Association, December 1, 1896.

I been in attendance from the beginning of labor I should have had no little difficulty in determining the presentation.

The exposed mass of brain was of a reddish color, and of normal consistency, about one to one and one-half inches thick, three to three and one-half inches in diameter, and covered only by the cerebral envelopes, the scalp being discontinued at the opening in the skull.

There was firm union of all the bones of the skull. The foramen from which the mass of brain protruded was one and one-half by two inches in diameter, and limited antero-posteriorly by the natural location of the fontanelle, while the parietal bones contributed to its formation on the sides.



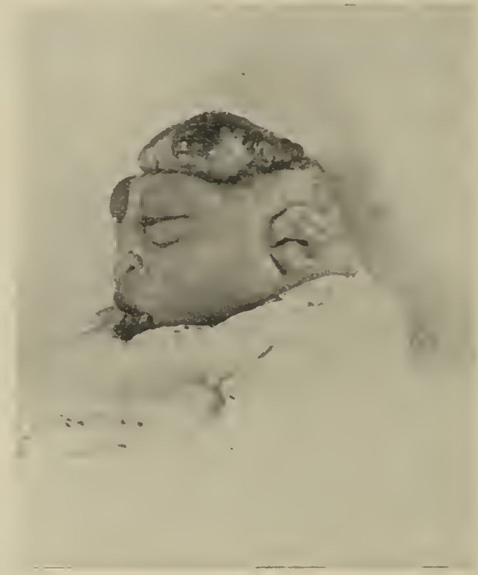
The child, a male, was well developed in every way excepting the head and face; weight ten and one-half pounds.

In most of the cases that have been reported, the exencephalon has been associated with other perversions of development, such as harelip, exophthalmos, absence of limbs or portions of limbs, supernumerary digits, spina bifida, etc. Only one, as far as I have been able to discover, has lived as long as three days. This was reported by S. R. Thompson in the *Medical Standard*, May, 1893.

Dain and Caput, in the *Bulletin de la Société Anatomique*, December 13, 1889, relate a case of "exencephalus in which there was absence of the forehead, and through an opening at the top of the cranium projected a reddish mass, the size of a turkey's egg, formed by the brain."

E. Bonnaire, in the *Archives de Tocologie et de Gynæcologie*, April, 1893, reports a case of "exencephaly with complete spina bifida, so complete, indeed, that in the cervical region the œsophagus appeared posteriorly between the divided vertebræ. A normal child was born at the same birth."

As to the cause of the perversion of growth in the embryo authors and teachers differ. In early times the cause was invariably ascribed to maternal impressions, and the late Fordyce Baker has been credited with demonstrating this theory in a paper read in 1886 before the American Gynæcological Society. He quotes freely from physiologists to show that the weight of authority must be conceded to be in favor of the doctrine that maternal impressions may affect the growth, form and character of the fœtus. In conclusion he quotes from the *British Medical Journal:* "When, in the early weeks, structural development is proceeding at no tardy rate, an interference with nutrition of the mother cannot but impress the fœtus detrimentally, and the organ interfered with would be that one in the condition of the most active development, or that which could less easily bear any arrest, however transient, with impunity."



J. G. Fischer strongly opposes the theory of maternal impressions, and says that "traditional superstition has perpetuated the notion, and that the medical profession is in no considerable degree responsible for its continuance; that intense emotions and apprehensions are experienced, and malformations are expected, by many gestating women, yet the abnormal births are extremely rare; that there is no law in the alleged result, and the occasional apparent relation of cause and effect is due to accidental coincidence."

Norman Bridge says: "To endow the blood with such a wierd intelligence as this would require is too great a load for our credulity. There is no philosophy that it so acts. There is probably enough in the theory so that we should, on account of the comfort of the pregnant woman, advise her not to indulge in violent emotions, or to see peculiar sights or to do anything which is outside of the proprieties of life."

The only possible causative element in the history of this case, aside from maternal impressions, is that at the time of the fall upon the ice enough violence was transmitted to cause an extrusion of brain substance from the undeveloped cranial cavity. This, I think, is hardly credible.

In the etiology of monstrosities nothing is really established, but it is patent to every observer that very profound emotion can and does in some unknown manner influence the growth and developmedt of the fœtus.

Jacob, of old, evidently understood this subject as well as we who have had the benefit of centuries of scientific work, when, to enable him to distinguish his flocks from those of his father-in-law, "he took him green rods of poplar, and of almond, and of plane trees, and peeled them in part: so when the bark was taken off in the parts that were peeled, there appeared whiteness: but the parts that were whole remained green, and by this means the colour was diverse. And he put them in the troughs where the water was poured out: that when the flocks should come to drink they might have the rods before their eyes and in the sight of them might conceive. And it came to pass that in the very heat of the ramming, the sheep beheld the rods, and brought forth spotted, and of divers colours, and speckled."

F. A. Dodge, M. D.

Le Sueur, Minn.

Dr. E. H. Grandin speaks very highly of hot saline injections into the bowel, as far up as the sigmoid flexure, as the best of all adjuvants in the treatment of uræmia following childbirth or operation. The doctor uses ten or twelve gallons of a 1 per cent. solution at a temperature of 118°. He does not neglect the use of drugs, but administers croton oil, glonoin, or whatever he considers indicated coincidently with the irrigation. The ordinary enema of two or three quarts of warm water has long been used in these cases, but this flushing of the colon with a large quantity of hot water would seem to answer every purpose of the ordinary enema, and to present many features vastly superior to that procedure.

An exchange says that a doctor in the highlands of Scotland, whose patients are scattered over a wide district, takes carrier pigeons with him on his rounds and sends his prescriptions by them to the apothecary. He leaves pigeons, too, with distant families, to be let loose when his services are needed.

Dr. Sabanyeff, of Odessa, reports two cases of suture in veins and arteries. In the first the suture was applied to the femoral vein wounded during incision of the inguinal glands; in the second to the femoral artery. In the latter case the patient died from the original disease, and Dr. Padalka found by microscopical examination that the healing of the wounded artery took place from without inward. Dr. Heidenhans (*Centralblatt fur Chirurgie*) cites two previously recorded cases, one involving the common femoral and the other the common iliac. He reports an instance in his own experience, in which in removing cancerous glands from the armpit an incision was made in the main artery. The bleeding was arrested by digital compression and the edges of the arterial wound were brought together by a continuous suture of catgut. Bleeding was thus completely arrested. The lumen of the vessel was not apparently diminished. The sutures held in spite of strong arterial pulsation. The patient made a good recovery. The axillary artery could be felt pulsating along the whole extent of the armpit.—*Record.*

In a paper read by Dr. J. C. Webster, of Edinburgh, Scotland, the writer discussed the employment of pessaries in the following conditions: (1) Anteversion and anteflexion, in which they should be discarded, and the treatment should be that of metritis, or the associated pathological conditions. (2) Retroversion and retroflexion. The influence of this condition *per se* has probably been greatly exaggerated. The conditions in which pessaries may with discrimination be used to advantage were stated and described. (3) Downward displacements of the pelvic floor. If the uterus alone is prolapsed and that slightly, a Hodge or Albert Smith pessary should be used. But where there is also prolapse of the anterior and posterior vaginal walls, operative treatment is indicated. (4) Fibroid tumors, if small may be benefited by the support afforded by a Hodge or ring passage.—*A. M. S. Bulletin.*

Park says: "I would remind you of Sir James Paget's too often neglected statement, that we ought to examine patients for operation with fully as much care as we do for life insurance; and add to it, that if this examination be so conducted we shall often find that which will make us hesitate and prepare them, before subjecting them to enhanced risk of what may in other respects seem for their good."

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SAND FILTRATION.

It will not be many years before the world will look back with horror and amazement at the time when cities deliberately and knowingly furnished to their inhabitants a drinking water so contaminated by sewage that time and time again epidemics of typhoid occurred with large loss of life. Within a very few years Chicago, Duluth and Minneapolis have suffered in this way, and indeed the latter city is still wrestling with an epidemic of typhoid which for several months has furnished from three to four hundred cases a month with the usual ten per cent. mortality. Chicago looks forward to the completion of its sewage canal to relieve it from the disgusting practice of pouring its excrement into the lake from which it gets its drinking water; Duluth has found some temporary expedient for overcoming the harm of doing the same horrible thing that Chicago does; Minneapolis has yet to apply a remedy for its difficulty, but it is understood that the city is taking steps for the inauguration of the only plan by which the river water can be made relatively fit for use, that is for the construction of filters for the whole water supply before it is pumped away to consumers, filters similar to these in use in London, Hamburg and other large cities which like Minneapolis take water from the river that they also use to carry away their sewage.

Can anything be imagined more undescribably filthy than to make of a stream at once a sewer and a water main? What would be thought of a man who should make the well from which he got his drinking water serve also for a cess-pool? Yet the difference between the two acts lies only in reliance upon the most misleading doctrine that a running stream purifies itself in a few miles no matter how much it may have been contaminated, a doctrine that was easily accepted when the tests of the purity of water were its clear appearance when held up to the light in a glass and a chemical examination for chlorides, but which falls to the ground in these days when bacteria are known to be the really dangerous contaminators of water; observation has shown that bacteria to the number of two million in a cubic centimeter may be present in water without diminishing its clearness and transparency or giving any warning of their presence by chemical tests, while experts have by common consent agreed that water cannot be considered safe for drinking purposes if it contains more than five hundred living bacteria to the cubic centimetre. Parkes, in his work on hygiene, quotes the Rivers Pollution Commissioners as coming to the conclusion that "the oxidation of the organic matter in sewage proceeds with extreme slowness even when the sewage is mixed with a large volume of unpolluted water, and that it is impossible to say how far such water must flow before the sewage matter becomes thoroughly oxidized. It will be safe to infer, however, from the above results that there is no river in the United Kingdom large enough to effect the destruction of sewage by oxidation."

It is difficult to conjecture how London could be supplied with drinking water at the present day were it not for the method of sand filtration which has proved so complete a success both there and elsewhere. The process by which the Thames water is purified consists of a combination of sedimentation with filtration. The water is first pumped into a storage reservoir capable of holding several days supply, the reservoir being made large for the double purpose of allowing time for the sediment to settle, and also to avoid the necessity of pumping water from the river at times of sudden floods, as after severe rains, when the turbidity of the river is temperarily increased. From the storage reservoirs the water passes to the filter beds. These consist of water tight basins upon whose floor are laid drain pipes imbedded in coarse gravel. Over this come layers of finer gravel and at the top a layer of fine sand of an average thickness of three feet. The depth of the water on the filter beds is never more than two feet and the rate of filtration is about one and three quarters gallons per square foot in an hour, the calculation being that each acre of filter bed will produce two million gallons of filtered water in a day.

The purifying effect of sand filtration upon contaminated water has been demonstrated in several ways. The most satisfactory evidence of the result of filtering the Thames water is shown by the health reports of London, in which the mortality from typhoid and other water borne diseases is strikingly low. The bacteriological test is also interesting; by it the Thames water is found to lose 97.7 per cent. of its bacteria by the process of filtration. It will also be remembered that during the cholera epidemic at Hamburg five years ago, the suburb of Altona, which drank the Elbe water after filtration, had proportionally but one-sixth as many cases of cholera as Hamburg which drank the same water without filtration.

Some busy statistician has figured the cost of a typhoid epidemic in dollars and cents, reckoning the lives lost at their legal value of $5,000 and computing the value of the time lost by those who recover. It is easy to prove that as a mere business proposition a very small epidemic of typhoid costs a city far more than the expense of providing an ample system of sand filtration for its drinking water, and the money loss is in reality the smallest part of the calamity that comes to a city whose inhabitants are stricken with an epidemic of that easily preventable disease, typhoid fever.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

BURNSIDE FOSTER, M. D., SECRETARY.

REGULAR MONTHLY MEETING, APRIL 26, 1897. The President, Dr. J. W. CHAMBERLIN, in the chair.

Dr. C. A. WHEATON exhibited several specimens of tumor of the jaw and naso-pharyngeal regions recently removed, and explained the method of operating.

Dr. ARTHUR SWEENEY read apaper entitled

CRIME AND INSANITY.

See page 203.

Dr. HELEN W. BISSELL read a paper entitled

INSANE AND CRIMINAL WOMEN.

See page 211.

Judge WILLRICH: It would be very presumptuous for me to attempt an extended discussion of this interesting and scientific paper, even though I were able to do so. I was asked by Dr. SWEENEY to be here this evening, as the subject is one we have often discussed together. I am impressed with one thought, and that is that I never before had an idea of the number of insane people in the world, and I would suggest the propriety of recalling the legislature that they may take immediate steps to provide more hospitals for the insane. I thoroughly agree with the conclusion of both these papers: that our present methods of treating the insane criminal are very crude, although a tendency towards more rational methods of dealing with them is becoming apparent. Lately the judges have been sending the habitual criminals to the probate court for examination, and many of them are now sent to the asylum instead of to the jail or workhouse. I would instance the recent case of a forger who had several times forged his employer's name, although he afterwards acknowledged that he knew he was doing wrong, and gave himself up to the authorities. He was judged to be a morose defective and sent to the asylum. Another case was a man who would constantly fire pistols beneath the window of his sweetheart, and, when arrested, said that he knew it was wrong, but that he wanted to impress her with the fact that he was a man and able to protect her. I believe that the European courts, having more time and more judges, go more into the antecedents of criminals and are more discriminating in their verdicts than our own courts. I believe that our advancing civilization will probably improve our methods of dealing with these classes of criminals.

Dr. TALBOT JONES: I was asked by Dr. SWEE-

NEY to discuss this paper, although I hardly feel competent to do so except from the point of view of the general practitioner. I desire to congratulate the reader on the literary excellence of his paper, although from a scientific point of view, I think, he is a little radical, and goes a little too far. The exact relation of crime to insanity is almost impossible to determine because we don't know just what sanity is. I do not quite agree with Dr. SWEENEY in his idea of dealing with criminals. I believe the law must deal with the insane as well as the sane criminals, for the protection of society. If a man knows the difference between right and wrong, then he is amenable to the law. The Guiteaus and Prendergasts and other criminals of that type must be treated as criminals if they can distinguish right from wrong. If Dr. SWEENEY's theory is carried to its logical conclusion, all criminals must be insane, and we should have no prisons but more asylums. Doubtless many great geniuses—Swedenborg, Luther and Joan D'Arc—were insane, although they accomplished much good in the world. I cannot believe that all criminals are the result of heredity and environment, as in a family where all are surrounded by the same influences there will be one "black sheep," while the rest are good. Furthermore, how would Dr. SWEENEY explain a crime committed after long deliberation and careful planning? It would seem to me that we must admit the existence of a vicious disposition, independent either of heredity or environment. In Tasmania, which was originally peopled by transported criminals, there now exists a community containing very many upright, useful and worthy citizens, all of whom are either reformed criminals or their descendants. This would seem to show that education and proper environment can accomplish much in the way of reform, and that criminals need not necessarily beget criminals.

Dr. SNEVE: We might say that the criminal, lunatic and prostitute are the children of degeneration, the word made so notable by Nordau; and certainly to anyone who studies these step-children of nature in asylums or penal institutions, it is apparent that we have to do with a class who make big demands on our pity; they are defectives and their physical conformation betrays them. Long before Lombroso kindled the fire which is burning with the oil of scientific investigation people remarked, "he looks like a thief," "he looks murderous," and so on, and it is only the scientific investigation of this popular observation that made Lombroso famous. In 1862 Lombroso made a post mortem on a noted criminal in Paris, and upon discovering a large median occipital fossa the idea was born which his later wide studies of the criminal and insane have confirmed, that "nature's step-children" are only reversions to primitive man, atavistic, and that if a sufficient number of stigmata be present, a type is formed which will enable us to recognize the habitual hereditary criminal. It seems to me that much confusion arises from the fact that psychology is not yet freed from its bondage to the idea that mind is a something intangible, a soul, which simply uses the brain as its agent or instrument, and not that mind is only the result of the activity of the brain cells. The individual is simply the resultant of two forces, viz: heredity and environment, and proper training of a healthy brain produces the normal individual, while any training of the congenitally defective brain seldom prevents a wandering from the right path. Bad training of a healthy brain also produces a criminal type, but this kind and the occasional offender, who commits crime through some great emotion, are amenable to proper reformation. Law is very defective in its dealing with these classes because it cannot individualize and change to keep pace with newer facts and knowledge; besides it attempts to mete out justice; to do this properly it ought to go back 200 years, oftentimes, as Oliver Wendell Holmes says. The criminal and the insane should be considered only with reference to the protection of society, and if we can make a thief or other offender pay back by work the loss sustained by the injured ones we can in so far do justice. Punishment does not prevent crime as history amply proves. Reference was made in Dr. SWEENEY's paper to Harry Hayward who was an excellent example of the congenitally morally defective, who, while well knowing the difference between right and wrong found great pleasure in committing crime. Dr. JONES and I have not yet reported the results of our measurements and studies and the post mortem. Analgesia is the key of innate criminality as Ferri has demonstrated; in the indifference to suffering, and in the pleasure, sometimes, of pain inflicted upon others; the cool ferocity of crime; the insensibility to the crime and its penalties, evident proof that this psychic analgesia is founded upon physical anæsthesia. Savages suffer less than higher educated peoples. Habitual criminals and chronic insane should be emasculated and confined, in my opinion, since we can only justly ask protection from them. Chronic epileptics should be treated by emasculation also, as these certainly should not be allowed to propagate their kind either. The occasional offender and the acutely insane offer hope of recovery in reformatories and hospitals. Those who underrate the influence of heredity should recall how invariably the characteristic nose of the Hebrew reappears generation after generation. At the same time heredity plays a secondary rôle to environment, else Australia could not have made good citizens out of its prison population.

Dr. DUNNING: I agree almost entirely with Dr. SWEENEY, and desire to congratulate him on his able paper. Although, of course, we must admit a relationship between physical and mental characteristics, our present knowledge of the so-called stigmata of degeneracy is so undeveloped as to be unreliable. I would distinguish between the terms degenerate and defective: the former relating to the condition of an individual after birth which tends to decay, while the latter term refers more to the result of heredity. I should have been glad to hear more in regard to the treatment of insane criminals, as I believe heartily in education and reformatories. The Wisconsin plan of having the counties take care of their insane seems to have many advantages, and might be very advantageously adopted by us in this state.

Dr. ABBOTT: Dr. SWEENEY has almost persuaded me to his views on this subject, although, if we follow it to its logical conclusion, we must either kill all these insane criminals or else incarcerate them for life. The more you educate them the more opportunities they have for committing crimes when they are again at liberty.

Dr. PINE: I should like to ask Dr. SWEENEY whether he has any actual knowledge as to the increase of insanity, crime and suicide during the last few years.

In closing the discussion Dr. SWEENEY said: The question asked by Dr. PINE brings up the whole question of degeneracy. There is no doubt that one reason for the increase of insanity is the increased stress upon the nervous system, caused by the defects in our social system which are year by year rendering it more difficult for men to make a living. The times have changed, and the pastoral life of a hundred years ago, with its few luxuries and few necessities, has been replaced by a more complex condition of existence in which changed habits and increased desires have rendered the struggle for existence more fierce and desperate. Previously life was more placid and uneventful; now, as facilities for production have been multiplied by invention, our luxuries have become necessities, and the struggle for them has become a continual battle. Competition has become more keen, and while success may bring no increase in happiness, defeat breaks down the spirit and crowds the weaker to the wall. Under the stress of this fierce battle the tired brain gives way, our physical health deteriorates, and the neurotic state and physical stigmata are transmitted to a new race of contestants who become degenerate or insane. The ultimate question which I have barely hinted at in my paper, as to the disposition to be made of these harmful classes, I am glad to see, has been partially answered in the discussion. I agree entirely with Dr. WHEATON that Harry Hayward should have been executed, not as a punishment for the crime, but to protect society from one who was essentially dangerous. But in the light of our studies can it be said that punishment at hard labor, or by solitary confinement will ever stamp upon a man's consciousness the glory of doing right? Do not such measures tend to repress the better nature and to develop the more feelings of bitterness and revenge? The solution of the question is not to be found in punishment, but in reformation and education. Dr. JONES' criticism is a very happy reply to the objection urged by Dr. ABBOTT. The fact that the scum of England who were sent to Van Dieman's Land developed into good citizens proved the efficacy of a change of environment and education. Just as transplantation of a field plant to a garden will transform the leaves, blossoms and fruit, so change of surroundings of an individual, with training and education, will often work miracles of good. We must not be, however, unmindful of atavism, which brings to the surface in species the generic traits which have been absent for two or three generations. Thus we may account for the black sheep in the pious-family which Dr. JONES has described. Certainly the fact that the sheep were not all black shows that some extraneous element must have been active in producing the condition in the fifth child and not in the preceding four. The subject is a large one and worthy of our best thought, but the solution is, I am afraid, afar off.

Dr. H. L. TAYLOR read a paper entitled

A MODIFIED STÖRMER'S INHALER.

See page 212.

MISCELLANY.

A NEW VOLUME OF HARE'S SYSTEM OF THERAPEUTICS.

Dr. Hare, Editor of the "System of Practical Therapeutics" has been led to add to new volume to it by the numerous requests received from those who have appreciated the usefulness of the original work, and who desire to see the same plan extended to cover the advances of the past few years. To ensure complete freshness of material Dr. Hare has assigned the various subjects to a new corps of authors who have dealt with them in their entirety, devoting, however, most attention to the later advances. This arrangement renders the new volume quite as serviceable to those who have not as to those who have the preceding three. As the title implies the "System of Practical Therapeutics" deals thoroughly and exclusively with the essential part of medicine, namely, treatment; and it may be added that it is the only work of its kind ever issued. It is published by Lea Brothers & Co., Phila.

If the writer of the anonymous letter about the sterilization of cat gut by dry heat will send his name and address, his letter shall be published.

NOTES.

THE TREATMENT OF ECZEMA CAPITAS.

Called to attend a child about 18 months old with eczema capitas, I found that by neglect the eruption was in the pustular stage, the entire head being covered with a thick yellow-green, brittle crust. It was with great difficulty that the child was restrained from scratching and rubbing the head, the itching, no doubt, being great. I had the child removed to the Children's Hospital, the hygienic surroundings of its home not being very desirable, and given the best care and treatment. The head was thoroughly washed with water, the greater part of the crust coming off. The hair was cleaned as good as it possibly could have been, and its matted condition removed. The surface of the scalp presented a raw, bleeding appearance. I had pineoline thoroughly applied, wrapping the head in a cap made of cheese cloth. The scalp did not heal at once, but there was a cessation of the pustular eruption, and thin dry, white scales took its place. I gave Fowler's solution internally, one M. every four hours, having the ointment applied regularly. In four weeks the head was completely well. The child was returned to its mother, and to my knowledge there has been no return of the eruption. I attribute the case to malassimilation, and in connection with the local application and the internal treatment had the diet and times of feeding regulated.

Dr. A. O. Lawrence.

THE STATE FAIR.

The State Fair will be held at Hamline, midway between St. Paul and Minneapolis, commencing on Monday, Sept. 6, and ending on Saturday, Sept. 11. The great practical value of these annual exhibitions can hardly be over estimated. As object lessons upon the vast and varied resources of the state, as well as upon the intelligence, enterprise and public spirit of its people, they are of inestimable value. The premium list has been revised with a generous hand, and the offers made are more liberal and comprehensive than any yet announced by the society. The large amounts offered for horses in other years are repeated, with additional classes and prizes for harness and saddle horses. Additional classes have been opened for cattle, increasing the competition among breeders and the general interest in the department. The usual large offers are made for sheep, swine and poultry, with some additions. The exhibit of live stock will be comprehensive, affording an opportunity to inspect, compare and study the characteristics of the various breeds of all the domestic animals. The amount offered for creamery butter has been increased from $140 to $250, while other liberal offers of a year ago in the dairy department are repeated. Premiums for farm and orchard products are also increased, thus giving a new impetus to the exhibition of dairy, agricultural and horticultural products. The machinery, honey, forestry and mineral exhibits will each be given even greater prominence than in the past. The woman's department will be made unusually attractive, and the main building will be filled with wonderful profusion of miscellaneous exhibits.

E. W. Randall, Sec.

THE TREATMENT OF CHRONIC RHEUMATISM.

One of my patients, whom I had treated for some time for chronic rheumatism, with but indifferent results, as is usual in such cases, asked me to make a special effort to find some remedy that would not only give him a temporary relief but which would cure him. I had given him from time to time the various coal-tar products, salicylates, single and combined with colchicum, macrotyn, iodide of patass., etc. Phytoline was recommended to me and I concluded to give it a trial. The result was far beyond my most sanguine expectations, and a happy one, indeed. Phytoline "just touched the spot." In the course of six weeks my patient was entirely free from rheumatism, and has been well ever since.

E. C. Beck, M. D.

New York.

Ferratin was introduced as an organic iron compound, identical with the natural product abstracted from all vegetable and animal food and stored in the liver and other organs to "feed the blood," by Prof. Schmiedeberg, of Strassburg. It has come into wide popularity with the medical profession, and clinical experience has proved that it is readily assimilated to the extent of 20 per cent. (it contains 7 per cent. of iron), is palatable, does not derange the stomach and is promptly efficacious. The committee now revising the Russian Pharmacopœia for a new fifth edition has, as we learn from the *Chemiker Zeitung*, 31, 1897, recommended Ferratin for official place. This is quick and deserved recognition.

Dr. A. Bruegman, Hartville, Neb: I have used "Sander & Sons' Eucalyptol" in pneumonia, and have meet with the most happy results. I have practised over 34 years, and I can candidly say this is one of the grandest preparations I ever chanced to meet.

LECTURES AND ADDRESSES.

SURGERY OF THE PAST AND PRESENT.

An Address Read before the Plymouth Club, April 23, 1897.

By H. McI. Morton, M. S., M. D.

Ophthalmologist and Otologist to the St. Barnabas Hospital.

Minneapolis.

(Continued from page 203.)

Now before I lead you up to the great plain of the medicine and particularly the surgery of this, our own day, let me take you aside for a final digression to consider the status of medicine and surgery in Germany, from the middle of the last to the middle of the present century.

Germany seems to have been the place, and this the time, when the great cauldron filled with the wildest fakery and medical ignorance of the accumulated centuries, seems to have been so heated by the flame of an outraged humanity and fanned by the winds of a changing better sentiment, that it boiled over and extinguished that outrageous class who had at last brought this disaster upon themselves, and did much to free medicine from a hideous bigotry and superstition which had held it in its grasp throughout the middle ages. Here the mighty forces of progress met and vanquished their lethal foes, and from the conflagration springs the Phœnix of a modern medicine and a modern surgery, which, had the progress of Hipprocrates and Galen been carried forward, would have not only come about sooner, but would have left no breeding place for these in which to grow.

During the seventeenth and eighteenth centuries the progress of medicine and surgery was so retarded by the inferior social status accorded the doctor, by the lack of proper laws, as well as by the superstition of the age, that it in truth was practically but little better than the medicine of antiquity, for it was largely a system of spells and charms, which were carried out by the charlatans in the most outrageous manner conceivable.

As the medicine of the Jews, of the Egyptians and the Greeks is difficult of comparison with the medicine of today, it may perhaps not alone interest, but be of value, as a more modern basis of comparison with the present day medicine and surgery, to briefly epitomize the condition of the science in the two preceding centuries. In the eighteenth century medicine was a thing entirely apart from surgery, and the latter was almost exclusively practised by the barbers of that time. This may seem strange, but it is only another striking illustration of the low esteem in which the art of surgery was held. Besides the usual functions prescribed to the tonsorial artists of our day, were added those of cupping, bleeding, extracting teeth, and giving enemas. Even in 1790 surgeons of ability were a rarity in Germany, the barber surgeons greatly outnumbering them. The status of medicine was so much above that of surgery that it was considered a great condescension upon the part of the physician to consult with the surgeon, and one he did not always trouble himself to make. In 1811 the barber was separated from the practice of surgery in Germany, but this union existed as late as 1845 in England. Is it not astounding that such a union should exist into the middle of our own century?

In these times, from out of the superstition and blind ignorance of the people sprung up a quackery that was so inconceivably outrageous in the perpetration of the grossest frauds, as well as the infliction of the greatest suffering, as to baffle description. In the sixteenth century all Europe swarmed with quacks, who derived the name from the German word "Quecksilber" (in English quicksilver), which was so extensively used during the raging of syphilis at that time. Every old woman, every charlatan of the most audacious kind, every pretender could gain the confidence of the populace, while the small number of reputable physicians and surgeons could starve. To present to your minds more vividly the conditions at that time, I wish to speak more in detail of three principal classes of these fakirs, who so shamefully, as well as profitably, plied their trade upon the credulity of the people. The rupture surgeons deserve preëminence, both for the impenetrable armor of audacity with which they mailed themselves, as well as by the atrocities they practised. People at this time looked upon rupture as a loathsome condition, and something of which to be ashamed. Of this the charlatan made huge capital. Horrible to relate, castration was practised as a cure for those poor creatures who were sufferers from this trouble. The family thought it better that the child should die than be exposed to such a state, so paid large sums willingly to these fellows rather than pay a small sum for a truss. Of course the operation did not cure, and when after the family were undeceived, through shame they kept the deception to themselves. In Breslaw, alone, one of these men multilated over two hundred and fifty children. Thousands were rendered impotent from this cause, and yet as late as the middle of the eighteenth century laws were passed permitting these operators to stand at fairs and practise their miserable art. Another class of which I shall speak, is the cataract-coucher, who plied his vocation without the least knowledge of physiology of the eye. By the introduction of a needle the cataract was forcibly torn from its attachment, and pushed backward into the vitreous humor of the eye. Almost all of these unfortunates became incurably blind, and out of fifty operated upon it is related that only four retained their vision.

Another instance of the blind faith of the times and the brazen effrontery of the charlatan may be seen in the methods of the lithotomist (or operator for stone), during the latter part of the last and the beginning of the present century. I cannot do better than quote the most excellent and interesting description given by George Fischer of the practice of this operation in Germany. He says:

"This class of crude empyrics, who like other mountebanks, advertise themselves, and as a rule collected a great number of lithotomic patients about them in the spring and fall, arose out of gray antiquity. Hippocrates would not submit to this operation, and subjected himself to others, probably because in his time they regarded the operation as too cruel. So the physicians in Alexandria were obliged to take the so-called Hippocratic oath, which recites: 'I will operate upon no stone patient, but will turn over this part of my practice to the mercenaries following that business.' In Arabia, also, those who operated for stone were subjected to public scorn; there, indeed, the sight of a woman was never permitted to a man. Nevertheless there have always been people who devoted themselves principally to this operation, but practised their art secretly, and it had descended from father to son or to some relative. In the middle ages the lithotomists traveled through all Europe; Fabricius von Hilden (born 1560) complained sorely that so few surgeons performed this operation, but abandoned it to the surgical frauds (Schnittarzte).

"In his time they visited the houses, offered their services, and were ready enough to perform the same upon wholly indefinite symptoms. Some plied their trade so disgustingly that as a relief, especially in the case of children, he had the organ sucked, milked as it were, to draw out the stone. They did not concern themselves as to preliminary treatment, adopting diet or proper after-treatment. They surrounded the operation with such a nimbus that if a nobleman was to be operated upon his vassals must assemble in the church in prayer to implore the assistance of God. Certain lithotomists distinguished themselves particularly. In Italy the people of Norcia, who were also famous as rupture operators, attained a great reputation. But in the fifteenth century the art of lithotomy was transplanted from their midst to France, as one from Norcia confessed to a certain Germain Colot.

"The home of the lithotomist moved to Germany until in the first half of the eighteenth century. At that time the most famous itinerant lithotomist in the Fatherland was the Frenchman, Frère Jacques. Jacob Beaulieu was born in 1651, of poor parents, in the Franche Comté, and as a 16-year old boy, enlisted as a soldier, where he became acquainted with a quack, who operated for stone in the country. After he received his discharge he accompanied a Venetian lithomotist for five years, and then attempted the operations himself. He changed his citizen's clothing for the monastic habit, in which now as Brother Jacques he traveled around and operated with success in many French cities. He lived very frugally, ate only bread, soup and vegetables, and took no money for his operations except a few pfennig for the mending of his shoes and instruments. Manliness and a steady hand, in like degree, distinguished him in his operations as well as coarseness and cruelty. After the incision he was accustomed to say: 'Your operation is done. God heal you.' Thereupon others put on the bandages. In 1697 he came to Paris and was introduced to the body-physicians of Louis XIV., Fagon and Felix. They saw him operate and admired his skill. He secured the interest of the king, received a free residence with the chamberlain, and was regarded by the common people as a man sent from God. At every operation great crowds of the curious gathered to look on, such that they were finally obliged to place guards at the doors of the hospital to keep back the throngs. Nevertheless an evil star rose over his operations; out of sixty-five who were operated upon in the Hotel Dieu and the Charité twenty-five died and only thirteen completely recovered, and therefore he was forbidden to operate here. Hitherto he had used an ordinary round catheter, when Fagon induced him to use a pumping probe and furnished him bodies for experiments in operating. Henceforth the results were more fortunate, and in Versailles Hospital thirty-eight incisions for stone were all successful. Fagon himself, suffering from this affliction, wished to be operated upon by Frère Jacques, but his friends restrained him, and he was cured by that very skillful operator, Maréchal, whom Garengeot saw perform eight successful lithotomies in a half hour. In 1703 the Marshal of Lorgues intrusted himself to the monk after he had twenty-two stone patients taken into his palace and operated upon before his eyes. They all survived, except the Marshal, who died on the following day. Through this Jacques lost his prestige in Paris, went away and would never return. After various tours in the French provinces and Holland he arrived in Amsterdam, where medals were struck in his honor. There he gave instruction in his art to Rau, then professor in Leyden. Frère Jacques then visited Antwerp, where also a medal of the value of sixty thalers, with the legend *Pro servatis civibus* was struck. After going back to Amsterdam his popularity waned, as they had come to consider Herr Rau a more skilful man than he. Then he went to Germany. In Vienna the king had him summoned; in Rome the Pope did likewise. Soon after, in 1714, he died in Besancon; he had already melted down the golden medals. His good reputation was attacked by his rivals, Mery and Saviard; Verdue also asserted that out of sixty patients operated upon, only thirteen had been cured, insomuch that in his own defense he had published in 1702 an eight page work upon the operations. It was stated in this that he had taken a solemn oath to renounce every reward, to devote his life to helping sufferers from calculi and rupture, to accept from rich people only his traveling expenses, and to show to other surgeons his instruments without charge. In his thirty years he is said to have treated at least 4,500 stone patients, to have deceived no one and to have performed no operation without the presence of physicians and surgeons. Mery's accusation that he castrated in cases of grown rupture, he met with the declaration that he had operated upon 2,000 people without injuring the testicles, the people being the poor, who could not pay for a truss. Various testimonials from body physicians and others concerning his skill were appended. Frère Jacques introduced the side incision. He made the incision on the left side of the perineum, but with no regular method, for he sometimes made it two thumb-breadths higher. In his first years, when he operated without the use of the grooved sound, he frequently came in contact with the body of the bladder, cut it through and injured the rectum and the vagina; later, with the help of the grooved sound, the operations became safer. He differed from his contemporaries in that he neither prepared his patients for the operation by bleeding and purging, nor did he bind them, but only had them held by strong men.

"Quackery was not confined to these mountebanks, but that most approved class of men, the *executioners*, competed with the surgeons. They enjoyed the reputation of being able to cure those diseases which had their origin in witchcraft, and, since they heard the confession of the witches upon the rack, they must have knowledge of the black art. They also had the privilege of treating surgical cases. They set the limbs which had been fractured by the machines of torture, and applied to the healing of the wounds made by the rack certain salves, which they prepared out of animal fats. The skill thus acquired by them was used as a means of coming in contact with people of other callings, hoping by this means to redeem their despised position. So it happened that frequently they supplanted the surgeons in the treatment of wounds, fractures and luxation, and did a great deal of mischief. The Leipzig faculty (in 1730) was called upon to attend a boy with a broken arm which had been bound so tightly by a torturer, and compressed with splints, that having become inflamed it could not be raised from the shoulder without pain and loss of blood. Dog-fat was their universal balsam. The drinking of the foaming warm blood of beheaded persons would cure epilepsy; for this purpose they sold the blood of a young woman or a young man at the highest prices, while the blood of a Jew was the cheapest. They were mostly consulted by the lower classes, but the better conditioned also had resort to the hangman. C. C. von Siebold relates that even His Reverence the Abbot, who in his old age was afflicted with an ossification of the parotid, betook himself to the executioner, with whom, in a healthy condition, he would never have associated, much less allowed himself to be touched by him."

Enough surely to show to what a low state the practice of medicine and surgery had fallen, and the character of its disciples and their followers. It would be presenting but part of the truth, however, were I not to state that even during these dark days there were men who were free from the ignoble spirit of the charlatan, and who labored for the advancement of their profession. Yet so little influence did they have as compared with the former that their attempts availed but little. This lack of influence of this better class may be seen in the appointment of Coblenz, the executioner, to the position of court and body physician at Berlin, by King Frederick the First. The medical fraternity protested without success.

Having asked me to talk to you upon "surgery," it may seem ill-timed for me to have so far, and at such length, digressed from the consideration of the surgery of the present day, with its splendid achievements; yet, the consideration of the magnificent development which has attested the last few years, it becomes a source of interest at all times to review the conditions and methods which have preceded and led up to them. "The science of medicine, perhaps the most conservative among the sciences, has slowly accepted the results which chemical and therapeutical research have opened up, but in the magnificent additions, the approved and adopted new forms of medication now in use, and constituting the major part of the armamentarium of the modern physician, it can claim as grand and beneficial achievements as many of the sister sciences. No less salient, too, is the humane and wonderful progress in its allied field —surgery. With the advent of anæsthesia, the field of research became so enlarged that the achievements of the past fifty years will well vie with those which have marked its history since the Christian era began. Under the beneficent oblivion it secures, what would have been regarded as miracles by the most advanced surgeons of the days before its introduction and use, are now regarded as so commonplace as to be entitled to be considered ordinary operations, fearlessly undertaken and easily accomplished, the technique being understood.

"Were Hippocrates, Heister, Greenfield, Franco or Douglass to witness operations which are now common under anæsthesia, they would stand amazed at their comparatively limited conception of the human powers of resistance or endurance. Still it is not to be overlooked that, considering their environment, the crudeness of their appliances, and their imperfect knowledge of anatomy, there were giants in those days, who pursued their heroic calling with all the bravery, ardor and self-abnegation which mark their modern compeers. And they were the forerunners, too, even with their primitive instruments and methods, of many of the operations which are the light and glory of modern surgery. It is rather to the perfection of the instruments used and to the better knowledge of methods of operating, than to new and distinctly original surgery, that our present era may lay claim to preëminence. The surgeons of two hundred years ago employed counter-irritation by scarification and cupping; hemorrhages were controlled by the tourniquet, by ligation, compression and torsion. The obstetrician was equipped with forceps, the single blade being used, the placental forceps, and chairs for use in labor. The gynæcologist had his pessaries and tampons, and was as ready to undertake Cæsarean section as the surgeon of today. The laparotomist made abdominal sections, the ophthalmologists removed cataracts, the otologists explored the ear, and the orificial surgeon passed catheters, dilated strictures very much as today."

In the consideration of the numerous important discoveries in the surgical art, which have aided in bringing about the great high state that it at present occupies, anæsthesia, the application of the bloodless method of operating, and the discovery of the antiseptic, and later aseptic methods, have probably been among the foremost of several prominent factors. How soon the mind accustoms itself to the marvelous, even the miraculous, for behold how, as a matter of fact, we accept the blessed deliverance from untellable torture by the discovery of anæsthesia, and yet it has been but fifty years since Dr. Morton first anæsthetized a patient for operation. As early as 1825, a French surgeon used what we might speak of as hypnotic influence to annul pain, but this was not, nor can it be successful in the broad sense that the use of ether and chloroform are. In the early days the patients were ofttimes bled into an unconscious state, then operated upon with the additional loss of blood due to the operation, or held or strapped to tables or a chair (made for the purpose), while the leg was amputated or the stone cut from the bladder. This state of affairs necessitated rapid operating upon the part of the surgeon, so that in preänæsthetic days the best operator was ofttimes he who would wield the knife with the greatest speed. Compare the agony of the anticipation of such torture, and its dreadful realization, which, though shortened to the utmost by the rapid operation, was long enough to be almost unbearable, the necessary forceful and brutal adjuncts, with the latter day methods. Now the patient is carefully prepared for his necessarily trying ordeal by careful preparatory treatment; he leaves his sleeping chamber unconscious, is carried to the operating room, and awakes to find the serious operation over, and is carried through the painful period subsequent to the operation by careful treatment. He has suffered no pain but in its anticipation; for surely not in realization or in memory. This great boon to humanity was an American discovery, and one year later Sir James Y. Simpson, of England, added the knowledge of the power of chloroform to induce narcosis. How little danger is attached to the use of ether and chloroform as anæsthetics may be judged by the fact that Billroth, the famous German surgeon, had his first fatal case after giving chloroform twelve thousand five hundred times. Out of ninety-two thousand cases under ether narcosis, but four resulted fatally, or one in twenty-three thousand. With chloroform death occurs about once in three thousand cases. Surely a small number if we consider the great number to whom administered. Then, too, by the use of cocaine, also an American discovery, many smaller operations are robbed of discomfort and pain. In that important operation for the removal of cataract from the eye, one can readily see the danger and pain to the patient who had to keep quiet during its delicate performance. Then, too, modern surgery is a bloodless surgery. Picture to yourselves, among the cries of the patient and the rush of the operator the great loss of blood that followed an amputation, in which there was no provision made to stop it until the leg was removed. However, it is true, that even in the fifteenth and sixteenth centuries methods, though imperfect, were practised to constrict the extremity above the point of operation. But the method now in use, and introduced by Esmarch, permits of an operation with the loss of scarcely as much as a drop of blood. This is accomplished in the following manner:

We will suppose that it is the amputation of a leg that is desired. The member is elevated, and a tight elastic bandage put upon the limb from the toes upward. This drives the blood to the body, and a rubber tube is placed upon the limb above the point of amputation. After the completion of the cutting part of the operation, the vessels are found and easily tied, and after this is accomplished the constricting band is removed, and the wound dressed.

Lastly I shall speak of the revolution worked by the introduction of antiseptic, and later aseptic, surgery. In the previous decade the formation of pus in the wound after the operation was not considered other than in the light of a part of the process of healing, and the word "laudable" was applied to the pus when it was proper in color and odor. Now all has changed. Pus has no place in the proper healing of wounds, and their omnipresent cause, the bacteria, are attacked by solutions which make the field of operation a barren one for their growth. The part to be operated upon is closely shaven, washed with the antiseptic solutions, usually the bichloride of mercury, and during the operation the parts are frequently irrigated with the solution. The hands of the operator are carefully cleansed, after which they are thoroughly soaked in one of these antiseptic solutions, and all instruments are thoroughly disinfected by boiling.

However, of more recent date, aseptic surgery has in a large measure supplanted antiseptic surgery. Antisepsis by using ofttimes irritating chemicals retards the healing and may irritate; while in the application of asepsis no chemicals are used, but simply sterilzed solutions, that is solutions in which all germ life has been destroyed by heat. All dressings which are applied to the wound are sterilized in the same manner, while it is still necessary to use the antiseptic solutions upon the hands of the operator. At no time during an operation must anything, be it hands, instruments or dressing, come near the field of operation unless they have been subjected to germ-killing processes. The perfect technique of the aseptic operation of today has come about very gradually since its first application about 1865 by Sir Joseph Lister. At this time a spray of carbolized solution was kept continuously going over and about the field of operation, and a great complexity of dressings applied. The spray was soon dispensed with, and now the dressings are much simplified. The results of the introduction of antiseptic and aseptic methods have conferred enormous benefit upon humanity, for whereas in hospitals where infectious wound diseases raged the worst, a death from this cause is almost unheard of. If a surgeon has a suppuration follow upon his operation, it is a cause (or should be) of great embarrassment to him, and may give rise to many an uncharitable and suspicious nod from his colleagues. In the field of obstetrics the introduction of antiseptic methods has been of supreme importance, for whereas in preäntiseptic days thousands of women lost their lives through infection, now such cases are rare.

I can at best but touch upon in a most general way the subjects just now briefly considered, in the time permitted in an evening's informal talk, yet I trust I have thrown upon the screens of your imaginations, the picture of what surgery was in the infancy of the race, during the middle ages, and what a towering position it holds today. If I have succeeded in doing this, I will, I trust, have given you an appreciation of what credit is due to those noble scientific spirits whose efforts have robbed disease of much of its horror, and taken from pain much of its sting. Today operations are done successfully upon the brain substance, wounds of the pericardium, or heart covering, and of the heart, are treated to recovery, large sections of the bowels are removed, and being joined by plates or a button devised for that purpose, heal perfectly, and the patient recovers. The kidney is successfully operated upon and even removed, and large tumors are exsected from the stomach. In the removal of cataract, a condition which consigns thousands upon thousands to oblivion, among good operators, but one case in one hundred is lost. Large surfaces of the body which from injury are deprived of the skin, are successfully covered. Operations are successfully practised for the restoration of the lips, the nose and the external ear. Recently, injuries to the blood vessel walls are successfully sutured, and for some years particles of steel have been removed from the interior of the eye by the use of an electromagnet, and vision preserved. Thus I could go on at great length, citing the remarkable possibilities of our modern surgery, but enough surely to indicate to you that there is scarcely a recess or organ of the body that the skillful surgeon cannot operate upon with success, and it is interesting to note that in the perfection of these methods of operating the change has almost all come about in the last twenty-five years. Thus from the uncertain and hidden source the mighty current of medical and surgical thought which now so proudly dominates our own time has come, and thus from the superstition and mysticism of the mediæval priestcraft has evolved a rational and scientific modern surgery.

504-5-6-7 Dayton Bld.

ORIGINAL ARTICLES.

THE PATHOLOGY AND SYMPTOMS OF APPENDICITIS.*

By L. A. Fritsche, M. D.

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There is no doubt that the acute and chronic catarrhal appendicitis is an extension of catarrh of the cæcum by the continuity of the mucous membrane into the appendix. The mucous membrane is usually very vascular and considerably thickened, and as the opening into the cæcum is narrowed by the same cause, accumulation of a viscid or muco-purulent product takes place, and the lumen of the appendix is generally found more or less dilated. Under favorable conditions the mucous membrane will return to its normal condition and the accumulated products will eventually be evacuated into the bowel again; however, if this catarrh continues, the mucous membrane will be gradually changed in character, and this in turn will change the character of the secretion which is a favorable medium for the development of pathogenic germs. Here we have two chief classes of exciting agencies, the mechanical and the bacterial or infective. The latter comes into play constantly as a sequel of the former. The germ which plays an important rôle in appendicitis is the bacterium coli-communis. Its presence in the intestinal tract when the mucous membrane is sound seems to have little or no power for evil; but it has been equally well demonstrated that if the epithelium is once destroyed, it has both pathological and pyogenic properties. The ulcers, which are often multiple, present sharp, well defined, infiltrated margins, and in depth vary from a slight superficial abrasion to complete perforation of the appendix. Tavel and Lanz have shown that in 82 per cent. of the infective cases this bacterium is the active agent. Fowler, who has studied the bacteriology of appendicitis on an extensive scale, almost invariably found this bacillus, but in many cases associated with other microbes such as the streptococcus pyogenes, diplococci, etc.

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*Read before the Minnesota Valley Medical Association, December 1, 1896.

In the early stage the catarrhal swelling may subside completely and the case may remain permanently cured, but if graver changes have taken place spontaneous recoveries are rarer, and when they do occur are liable to a recurrence even after many years. When the ulcers heal they leave a cicatrix which contracts the lumen. The chronic catarrh will nôt only change the character of the secretion but also the organ itself. It becomes thickened, immovable and adherent, and its mesenteriolum also becomes thickened. In consequence of adhesive peritonitis it becomes more and more incorporated with the cæcum, the neighboring loops of intestine and the parietal peritoneum. The evacuation of the secretion becomes more and more difficult, and in the dilated portion of the appendix a fæcal calculus will be gradually formed, or an accumulation of a foul secretion takes place and an empyema is formed. In either case if the appendix has become firmly adherent to the parietal peritoneum an inflammation of the connective tissue behind the cæcum, without participation of the general peritoneal cavity, will occur before perforation takes place. In such cases the perforation does not open into the peritoneal cavity, but into the loose retro-peritoneal connective tissue and leads to a localized extraperitoneal abscess.

The many observations made at operations for chronic disease of the appendix show that this organ alone may be affected, or that the surrounding structures are involved, or in many instances that both the appendix and surrounding structures take part in these inflammatory changes. This is the ordinary course of the disease which may go on for many years, progressive in its various stages and undergoing many deviations.

An acute infection may occur in any of its stages which will go on to abscess formation in the structures surrounding the appendix, without perforation, to pleurisy, peritonitis or acute gangrene of the viscus, manifesting the most violent symptoms. Cases of gangrenous appendicitis die rapidly from general sepsis, sometimes even after a few hours.

By applying the observations made in an autopsy, *in vivo* to clinical practice, we obtain a clearer understanding of the various phases of the disease, and in consequence are able to build a safer foundation for rational treatment. It is self-evident that the gradual inflammatory changes which take place in the appendix will manifest themselves in characteristic symptoms; and again cases will occur where grave changes in the organ may not present very important symptoms during life, but that they will occur without any manifestations whatever no one will believe. You frequently have to deal with patients where subjective symptoms are erroneously accepted, such as pains coming from the stomach and liver, nausea and disposition to diarrhœa and constipation, all thought to have been the result of a different cause. Patients have been sent to Carlsbad and other watering places for years until an acute attack of appendicitis revealed the true source of the trouble, and after subsequent removal of the little sinner the patient remained in good health. On the other hand you may have to deal with patients that are not so observing of their own person and not so sensitive towards smaller ailments, that some allowance will have to be made for their statements. We will not go amiss by assuming that a simple appendicitis will call forth a series of corresponding symptoms which are characterized as follows: First, appendiceal colic. Second, together with the first symptom and during the intervals there is a tendency to diarrhœa or constipation. Third, painful attacks in the ileo-cæcal region which may pass over in a few days, with no general disturbance; or these attacks may continue and extend over the entire abdomen accompanied with vomiting. A high temperature may be present which will continue for several days, but generally the fever is not marked. Fourth, a painful swelling, which may be the distended and thickened appendix, or if tumor shaped, an exudate forms in the ileo-cæcal region. It is very characteristic that there is no general disturbance of the system in these cases, and they usually make a quick recovery. However they have frequent relapses. In the interval the patient may feel entirely well or may continue to have a dragging sensation and feeling of discomfort in the right side. Whenever complications, such as lymphangitis or pleurisy or an infection (gangrene and peritonitis), follow a simple appendicitis the symptoms will vary according to the nature and gravity of the infection. The onset of these complications is usually very violent. So much for the clinical symptoms of appendicitis simplex.

If the catarrhal inflammation does not subside and the mucous membrane is not restored to its normal condition, relapses will always occur, and ulceration, fæcal calculi, or an empyema which have formed will cause a perforation of the walls of the appendix and the formation of an abscess in the structures surrounding the appendix. This description answers to the form known as purulent perforative appendicitis. It is nothing more than a renewed attack of the old trouble but of a much graver nature. The onset of the symptoms is much more sudden and violent than in the simple form. The symptoms are ushered in by a chill, followed immediately by a high temperature and quick pulse.

Severe pain extends over the entire abdomen, which will soon concentrate in the ileo-cæcal region; vomiting and diarrhœa, light cyanosis and perspiration are present. If sufficient adhesions have been formed around the appendix the symptoms and fever may subside after two or three days. You only feel a more or less extended swelling next to the ilium, which is tender on palpation. Upon opening the same you will find a large abscess.

In other cases the violent symptoms will not subside; the general disturbance is great; the pulse remains flighty and does not correspond with the temperature; the vomiting continues so violently that it may become fæcal in character and sometimes lead one to believe that it is a case of intestinal obstruction. More chills may occur, which announce new complications, such as the burrowing of an abscess downwards into the pelvis, multiple abscesses, purulent pleuritis, etc. Very rarely does an abscess in the vicinity of the appendix tend toward a spontaneous recovery, and when it does it is either evacuated through a rupture into the intestine or through the perforated appendix which may act as a drain. Perforative appendicitis may in consequence of renewed infection become gangrenous appendicitis.

I will now demonstrate some pathological specimens that will illustrate to some extent what has been said concerning the development and course of catarrhal appendicitis. My colleage, Dr. Strickler, has kindly consented to have his cases included where I assisted him at the operation, and these together with mine make a record of eighteen cases. These specimens were obtained by an autopsy *in vivo* before an abscess had formed. I will not describe them in the order of heir removal but will take them up in the order of the stage of the disease they were in when removed.

The first specimen represents the disease in the acute stage of the second attack, which occurred six weeks after the first one, and was removed twelve hours after the first symptoms were ushered in. It now looks small and shriveled on account of its preservation in alcohol, but when first exposed to view it was found to be curved in contour, free from adhesions, three inches in length, and one-half inch in diameter, highly congested, very much distended and tense. It resembled very much a small fresh boiled Vienna sausage. The lumen of the appendix was closed so that none of the secretion could be evacuated into the bowel. Upon opening it a light colored muco-purulent fluid escaped, having a slight fæcal odor. No well defined ulcer or calculus was found. The patient had no high fever before the operation, the pulse was accelerated and somewhat irregular. A small, very painful swelling could be detected. There is no doubt that in this case the violent symptoms, which were vomiting, extreme pain all over the abdomen and concentrating in the ileo-cæcal region, were caused by the arrest of the outflow of the secretion from the appendix into the main bowel

The second specimen was removed from a case of chronic relapsing appendicitis of seven years standing. During the intervals the patient complained of a dragging painful sensation in the right side. A definite swelling could not be detected upon examination. Upon opening the abdomen we found a short hypertrophied appendix behind the cæcum and partly adherent to the parietal peritoneum. When it was lifted out, that portion which was adherent to the peritoneum and the peritoneum itself showed a small gangrenous patch which was evidently pointing to a perforation. More than one-half of the appendix was obliterated and incorporated with the cæcum through adhesions, and in consequence of this also bent upon itself. The obliteration was no doubt brought about by former ulcerations followed by cicatrization. You will notice the hypertrophied condition of the wall and the mesenteriolum.

The third is a very insignificant looking specimen and is one of chronic catarrhal appendicitis of three years standing. The patient frequently had appendiceal colics, but felt entirely well during the interval. It was removed about three weeks after an acute attack and, although all other symptoms had subsided, the patient continued to have a throbbing pain over the region of the appendix and, now and then, darting pains over the abdomen. Upon exposing the appendix to view it was found to be free from adhesions, somewhat distended and tortuous, and very much congested. The opening into the cæcum was not closed as some of the contents could be forced into the bowel. When it was opened a bloody mucous fluid containing some cheesy looking particles escaped. You can still see the site of some abrasions from which slight hemorrhages occurred; otherwise nothing abnormal can be seen.

The fourth specimen also comes under this class. It was removed last Sunday. The patient was sick four days, and upon his request the operation was performed. The appendix was free from adhesions, very tortuous and hyperæmic, and quite distended. The cæcum and that portion of the colon which came to view had a grayish leaden hue and was evidently in a state of catarrhal inflammation, which would show that the disease of the appendix was a continuation of the intestinal catarrh. Upon opening the appendix a small amount of this fæcal matter escaped. You will notice a thickening of the mucous membrane throughout its cavity.

The fifth specimen is one upon which we will have to dwell somewhat longer. It is one of perforative appendicitis following the chronic catarrhal form and was removed 24 hours after the initial symptoms set in. The patient was taken sick with vomiting and excruciating pain in the ileo-cæcal region in the afternoon. A small, very painful, sausage shaped swelling could be felt the next morning. Temperature at 9 A. M. was 101° and gradually went up to 104° by 2 P. M. Was covered with slight cool perspiration and had a somewhat anxious countenance. Was operated upon at 2:30 or about the same time he began to complain the day before. When the abdomen was opened to the peritoneum the hypertrophied appendix could be distinctly outlined as it was directly under the parietal peritoneum. When the same was opened it made its involuntary exit and was found to be completely enveloped by the omentum, but otherwise free from adhesions. That portion of the omentum which surrounded the appendix was completely adherent to the same and also on the point of becoming necrotic. When that portion of the omentum was removed, the almost gangrenous appendix, as you now see it, came to view. It is an ideal specimen of the kind and will illustrate much better than the description made in the forepart of my paper about this stage of the disease. Notice the thickening of its walls and mesenteriolum and the dilatation of the lumen from the base to the apex. At the peripheral end of the middle third you will see a perforation, and ulcerations extending to the base where a large fæcal calculus is situated. Above the calculus notice the constriction. This specimen illustrates beautifully the changes which take place in chronic catarrhal appendicitis and to what conditions it will ultimately lead.

The sixth specimen is exactly similar to the last one described only in a more advanced stage. It is one which we term as purulent gangrenous appendicitis. It was removed about three days after the patient was attacked. and when septic peritonitis was quite advanced. Notice the remnants of a large gangrenous appendix with a portion of the omentum adherent to it. The calculus was found in the débris surrounding the appendix. Unfortunately complete protective adhesions between the peritoneum, intestines and omentum had not been formed in this case, and some of the contents escaped into abdominal cavity. Patient died 24 hours after the operation. I can record another similar case which died subsequently after the operation.

The remaining eleven cases were all abscesses, simple and multiple, and with two exceptions a fæcal calculus was found in all of them. I have no doubt that concretions were present in these too but that they either escaped our notice or, if they were of a soft nature, that they were dissolved in the débris before opening. The appendix, or certainly the largest portion of it, had sloughed. In two cases I found the lumen entering the cæcum, and in one case saw three calculi *in situ* at the base of the remaining portion of the appendix. Of the three cases of multiple abscesses I saw one in consultation with Dr. Cooley where an abscess burrowed down retro-peritoneally between the bladder and rectum. The third day after the operation it ruptured into the bladder, but the case did not get well until it also ruptured into the rectum.

The second one I saw in consultation with Dr. Strickler. It was a case of extra-peritoneal ab-, scess, caused evidently by a perforated appendix which made a small perforation into the bladder.

The third was my case, which Drs. Hirsch and Strickler saw with me in consultation. It was a case of purulent perforated appendicitis with well marked septic peritonitis, and operated upon on the third day. Patient had an acute attack three weeks before. The abscess cavity was rather small, containing about half a cup of pus, and extended between adherent loops of intestinal and parietal peritoneum to the median line. After a week another large extra-peritoneal abscess developed which extended up to the liver. Five weeks later and about one week after the second abscess cavity was closed, the patient was taken with violent coughing fits accompanied by a rise of temperature. An abscess between the diaphragm and liver was suspected and immediately opened. A nine inch drainage tube was inserted and kept in place until the cavity was closed. The coughing spells and temperature subsided after a few days.

I do not believe that the second abscess had direct communication with the first, and formed independently in the retro-peritoneal connective tissue by an infection from the first. Sufficient drainage was provided for the first abscess and there was no communication from the second.

There is one more complication which I barely mentioned in the forepart of my paper, and that is the presence of a serous exudate surrounding the appendix, caused by an inflammation of the peritoneum. This exudate may become infected with germs which migrate through the walls of the appendix and become an abscess. In this case the appendix is not previously perforated. We have not had sufficient experience to corroborate the same. In one of our cases of appendiceal abscess we found an extensive exudate in the lower part of the abdominal cavity below the enclosed pus pouch.

Of the eighteen cases all recovered with the exception of the two mentioned, and I have no doubt that these could have been saved if an earlier opportunity for the knife had been afforded.

To sum up the pathology of appendicitis in a nut shell as follows, we have:

a. A continuation of a catarrh of the cæcum into the appendix, which will produce a thickening of its mucous lining and gradual thickening of the entire organ with its mesentery.

b. A thickening of the mucous membrane will arrest the flow of the secretion by closing the opening into the cæcum.

c. The stagnant secretion will change in character and becomes a good medium for the development of pathogenic germs.

d. The germs will attack the walls of the appendix and produce slight abrasions and ulcers.

e. In the stagnant inspirated secretion a calculus often forms which will also aid the ulcerative process.

f. Ulceration is followed by cicatrization causing strictures and partly obliterating the lumen, or ulceration may go on to perforation.

g. Perforation will produce septic peritonitis, or end more favorably in an ab.cess formation. So much for the pathology and symptoms of catarrhal appendicitis.

It is not the purpose of this paper to go into the treatment of the various forms of this disease, as that part of the subject has heretofore been very ably discussed by the members of this Society.

TWO CASES OF FRIEDREICH'S DISEASE.

By Harold N. Moyer, M. D.

Chicago.

The literature of this disease has become quite extensive during the last few years, but cases are still sufficiently rare to make every new observation worth reporting. Especial interest is lent to the study of the disease because of its peculiar family relationships.

The subjects of this sketch are two children one of whom, Reinhold, has been affected with the disorder for four years, and the other, Carl, has shown signs of the affection for the past two years. They are brothers and are the sixth and seventh children in a family of twelve. The father of this family is 52 years of age, a carpenter by occupation, who has always enjoyed good health. He is not what one would call robust, but he appears well and strong. The mother, a slender woman 48 years of age, has always had excellent health.

Reinhold, 16 years of age, was the first of these children to show signs of the disease. It began four years ago. Prior to that time he had been well, with the exception of measles which occurred at four years of age. When 12 years old this boy had an attack of diphtheria, after recovering from which it was noted that there was marked loss of power in the lower extremities and that he staggered and swayed when walking. These symptoms have increased until the present.

In walking the feet are placed widely apart and the toes somewhat inverted. The gait is shuffling and unsteady, with some swaying of the body. Cannot walk a straight line. When turning suddenly he staggers and almost falls. Can stand unsteadily with feet close together and eyes open. If eyes are closed will fall if not supported. When attempting to touch the tip of nose with finger will miss it by from one to two inches. With eyes closed cannot place heel of one foot on the toe of the opposite. There are no sensory disturbances. As the ataxia is far advanced, the trunk anæsthesia so characteristic of tabes in the adult was carefully looked for but was not found. The pupils and eye grounds were normal. No nystagmus nor muscular tremor. The knee jerks are abolished. At no time in the history of this case had there been pain or paresthesia. The boy is small for his age, and his facial expression is vacant. He is, however, fairly intelligent though his education has been necessarily neglected.

Charles, 14 years of age, the next youngest of the family, was affected first two years ago. The family early recognizing the same symptoms that had previously shown themselves in the older boy, when he began to sway and walk with his feet wide apart. About six months after the onset of the disorder the boy sustained a fracture of the leg, and the family state that after getting up all of the symptoms were aggravated. He also is small for his age and is slender and delicate looking. This has been the case since early childhood. The symptoms are identical with those of his brother excepting they are not so marked. In walking the feet are not so wide apart, and there is not the same staggering gait, though in turning suddenly he will pitch quite violently. Ataxia of upper extremities not so marked as in case of brother. The symptoms in this case came on gradually, and have progressed ever since they were first noted. In the beginning there was no pain, but during the past two weeks there have been complaints of pain in the legs and of stiffness of the knees. The knee jerks are absent. Sensation is not impaired. The pupils and eye grounds are normal and there is no tremor.

A point raised in the history of the older patient is as to the relation of the attack of diphtheria to the onset of the disorder. I believe that the symptoms of tabes were probably present before the attack but not to a degree to attract the attention of the family. In the second boy the disorder was recognized nearly a year before the accident in which his leg was broken, and the mother states that he was worse after getting over this injury. This corresponds with what we have observed in another family, in which this disorder existed. There a little fellow of four years, was found to have absent knee jerks and slight swaying with eyes closed. Up to the time he came under observation the family did not think he had the disorder. He continued in about the same condition for some months and was then taken with a severe attack of typhoid fever after which the ataxia had so far increased that he could scarcely walk. These cases show that the malady is greatly aggravated by an acute disorder or an injury.

The family under consideration have 12 children as follows:

1. Emil, aged 23. Well.
2. Boy, died at 18 months.
3. Boy, died at 10 months.
4. Emma, age 19. Well.
5. Helen, age 17. Well.
6. Reinhold, age 16 Ataxic.
7. Charles, age 14. Ataxic.
8. Minna, age 13. Well.
9. Boy, died at 15 months.
10. Boy, died at 6 months.
11. Martha, age 6. Well.
12. Henry, age 5. Well.

Eight of the twelve are boys of whom four died in infancy of some acute children's diseases. The mother says that diarrhœa was the cause of one death and that convulsions caused another. Out of the eight only two are living and well. All the girl children are now living and free from disease.

A careful examinations of all the family did not show absence of the knee jerks or ataxia, these being the only symptoms presented by the two boys who now have the disorder.

The pure form of the ataxia in these cases serves to distinguish it from the cerebellar heredo-ataxia with which these cases were formerly confounded and which served to make of Friedreich's disease such a mixed symptom complex.

Morton Prince in "Nervous Diseases by American Authors," page 648, gives a table of the diagnostic differences of these two affections which we reproduce:

FRIEDREICH'S DISEASE

1. Ataxia.
2. Disordered speech.
3. Absent knee-jerks.
4. Nystagmus.
5. Pupils normal.
6. No ocular symptoms.
7. Scoliosis and club-foot.
8. Heredity.
9. Begins before puberty.

CEREBELLAR HEREDO-ATAXIA.

1. Ataxia.
2. Disordered speech.
3. Normal or exaggerated.
4. Nystagmus.
5. Argyle-Robinson pupil.
6. Ocular symptoms.
7. No scoliosis or club foot.
8. Heredity.
9. Begins after puberty.

It will be seen from the foregoing that these two cases easily fall within the group of Friedreich's disease. They present as yet only ataxia and absent knee-jerks.

103 State St.

HOSPITAL AND CLINICAL MEMORANDA.

THREE ACCIDENTS WITH RESULTS.

Case I. Ambrosio Madril, a Mexican aged thirty years, height five feet seven and one-half inches, weight one hundred and seventy pounds, was brought to St. Vincent's Hospital, December 20, at 4 P. M.

On December 17, at 11 A. M., he fell into a well forty-eight feet deep. One of his companions lowered himself into the well with an extra rope and a board to which the injured man was spliced and hauled to the surface by a horse. He sustained a fracture of the lower end of the femur, and patella; and the knee joint was completely destroyed, the femur projecting several inches through an enormous laceration just above the knee joint. He also had a fracture of the radius and ulna near the wrist, in addition to several lacerations and contusions of the head. He was brought sixty miles over land in a wagon, none of the injuries having received any attention, not even a bandage placed on either leg or arm. His condition was such when he reached the hospital that rest and stimulation were urgently indicated. On the following afternoon, with the assistance of Drs. Harroun and Diaz, I amputated his leg high up near the hip joint. He reacted nicely after the operation, took considerable food, slept well, and in every way seemed to improve, except in the matter of his temperature, which was 102° F. before the amputation, and which did not fall at any time afterward. Local and constitutional means were vigorously employed in an attempt to control the septic process, but everything failed, the patient dying at the expiration of forty-two hours after the operation with a temperature of 105⅜° F.

The lacerated tissues of the leg were in an advanced gangrenous condition when he reached the hospital, and the amputation was made for this condition, as well as on account of his splendid physical powers as exhibited by his ability to "hold up" after such an accident, and the subsequent long trip over a rough country, without having shown any marked signs of physical exhaustion.

CASE II. On the night of June 14, 1896, J. F., Mexican-Irish parentage, æt. 40, while aiding in extinguishing a fire at St. Vincent's Sanatarium, was caught by a falling adobe and brick wall, sustaining a compound fracture of the skull, and a compound lacerated fracture of the left upper arm. Under most adverse and unaseptic surroundings, with oil lamps for light, in a dirty room, with a score of well meaning but illiterate help, Dr. Knapp and myself trephined the skull, removing two buttons and a considerable mass of blood clots from the surface of the brain. Irrigation followed, a strand of iodoform gauze was placed in each opening, a loose head dressing applied over an enormous flap, which almost scalped the man at the time of the accident.

The injured arm was placed upon, and securely between sand bags, sprinkled with iodoform and covered with a loose dressing of iodoform gauze. The patient was placed in bed at 3 A. M.

When we called at 10 A. M., seven hours later, he was perfectly conscious, and complained of little or no pain. Both wounds were dressed daily, the skull healing at the end of five weeks without suppuration. The arm was carefully watched and kept on the stretch until all swelling disappeared, when it was placed in a plaster dressing, with trapdoor opening over the lacerated point. The arm healed without suppuration, no fragments of bone coming away at the end of six weeks, and the shortening at this time is scarcely perceptible. There is no ankylosis at the elbow joint, and the muscles have assumed their normal size. Up to the present time no head symptoms of any kind have developed. The patient is a vender of milk and performs his work as before the accident, is strong and healthy, and has long since regained his normal bodily weight.

CASE III. W. S. H., æt. 21, American, lawyer, during a quarrel early in the morning of August 7, 1896, was shot through the body with a 45 caliber pistol bullet, which entered the right side one inch below the clavicle, dipping at an angle of 20 degrees, passing through the lung and emerging three-fourths of an inch from the spine on the same side of the body.

The shooting occurred at Pecos, a small settlement south-east of Santa Fé, distant 28 miles in an air line. A telegram notified me of the case, to which response was made, giving directions to keep the injured man absolutely quiet until medical aid reached him. He was brought twelve miles by stage, and twenty-eight miles by rail to this place. His family being friends of my own, and residing at a great distance from Santa Fé, I had him brought to my own house, where he remained in my care eight weeks, when he was discharged in good health. The hemorrhage was very great immediately following the injury, both external and internal, the right chest cavity being almost filled with blood. Normal salt solution was used and an enormous quantity of alimentation per rectum, the stomach retaining nothing but cracked ice and champagne. The wound was packed daily clear through with strands of iodoform gauze. The temperature went to 104° F. on two occasion. The wound healed from the centre without suppuration, and was closed back and front with firm scars at the end of six weeks. Appropriate therapeutic measures were employed to facilitate the absorption of the enormous amount of blood in the right pleural cavity, which cleared up completely at the end of nine weeks; an area of dullness two inches in diameter surrounding the course traversed by the bullet through the lung remained at the time the patient was discharged.

In a letter received several weeks ago, Mr. H. informs me "he never felt better in his life, and has gained 28 pounds in bodily weight."

In all surigical cases of my own, and those with which I have been associated since coming to New Mexico, I wish to state that it is my belief that the pure, dry air of this region acts in itself partly as an antiseptic; for with the most ordinary aseptic precautions all manner of wounds heal rapidly and with little or no suppuration. I employ chloroform as an anæsthetic in almost all cases of surgery and obstetrics, and I have had, thus far, no unfavorable symptoms from its use, though we are here seven thousand feet above the level of the sea.

FRANCIS CROSSON.

Santa Fé, New Mexico.

Dr. M. Gallman, of Memphis, in a paper on sudden death during the puerperium, says that in the presence of peripheral trombosis, etc., absolute rest must be enjoined, especially between the second and third weeks of the puerperium, as this is the disintegrating period of the clots. The danger should also be explicitly pointed out to both patient and attendants, thus insuring, to some extent, a healthy coöperation.

FOREIGN BODY IN THE ŒSOPHAGUS.

The case I have to report is that of a little girl, A. M. C., three years old, of Glencoe, Minn., brought to me by Dr. Barrett, of that town.

Nine days ago the child had a small tin whistle, the size of a quarter, in her mouth; she tried to eat some maple sugar, when the sugar and whistle both went down her throat.

She choked and cried with pain; during the day she vomited several times, but was too small to indicate the seat of her trouble.

Since then she has been unable to swallow anything but liquids, she awakened at night crying with pain, put her hands to her throat and lungs and complained that they hurt her.

Dr. Barrett had her stools carefully watched but no whistle was passed.

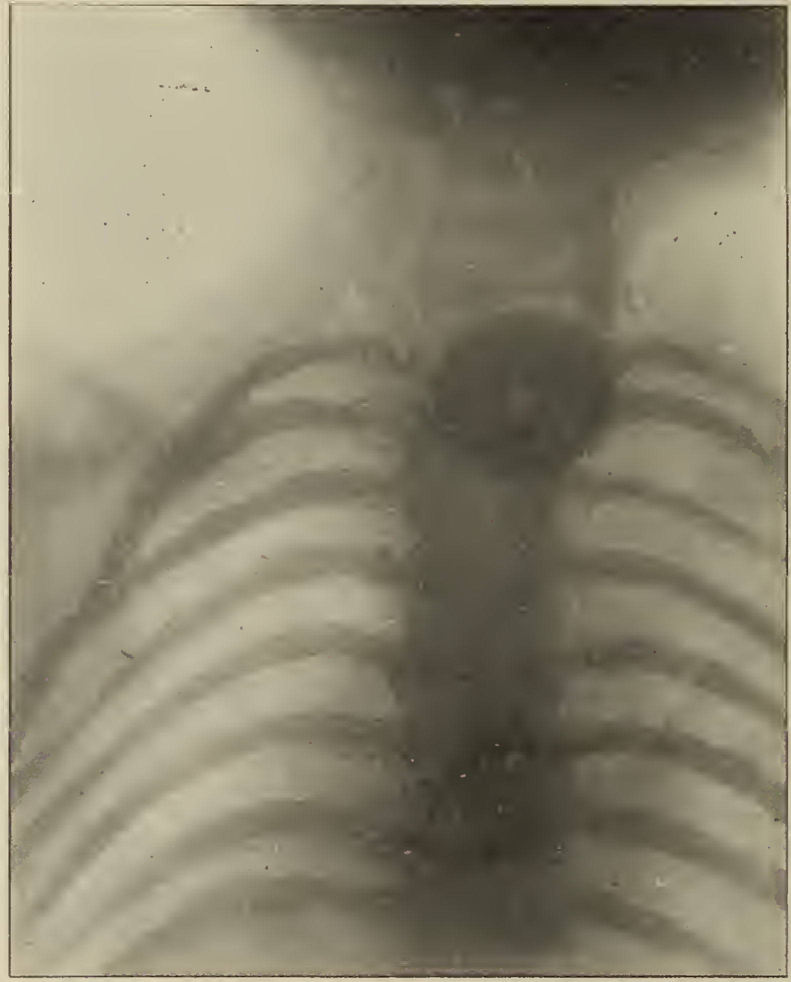
I examined the child with the X-rays and fluoroscope and located the whistle in the œsophagus just back of the sterno-clavicular articulation.

The child was anæsthetized, and when quiet a five minute exposure was made, resulting in the accompanying skiagraph.

Then with a mouth gag inserted we passed various styles of forceps and horse hair probangs into the œsophagus but without success, as they one and all failed to retain their hold on the beveled edge of the whistle.

Finally I passed my finger into her gullet and was able to feel the upper edge of the whistle.

With the finger as a guide I passed a right angled laryngeal polypus forceps with sharp cutting edges that hung on, grasped the whistle and removed it.



The negative was not developed until six hours after the whistle was removed, and simply verified the observation made with the fluoroscope.

The child has had no further trouble.

ARTHUR AYER LAW, M. D.
N. Y. Life Building, Minneapolis.

Northwestern Lancet.

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CHANGE OF AIR.

For centuries it has been known that change of air is one of the most valuable therapeutic agents, useful not only for the actual cure of certain diseases, such as phthisis, asthma, intermittent fever, whooping cough and hay fever, out also for the promotion of convalescence from an exhausting illness. Much ingenuity has been exercised in explaining how this change of air operates for good, but a really satisfactory way of accounting for all of the phenomena involved is still lacking. Medical men are undoubtedly easily satisfied when it comes to the matter of furnishing explanations for things, and are seldom inclined to insist upon too rigid an application of logical tests; for in dealing with diseases and their remedies they come into contact with so much more of the unknown than of the known, that they become accustomed to accepting facts without insisting upon accompanying explanations.

In former times it was the custom to seek warm and sheltered places as health resorts. Sea air was supposed to be too harsh in cold climates, and on mountain tops the air was considered too rare and of too low temperature for the invalid to be benefited. There was an especial prejudice in favor of the air in which the sick person was born, and as a last resort the physician would send a patient to his native place, in most cases, it is to be feared, to die. The warm, moist climate of the Madeiras was considered the ideal resort for the consumptive, and when the first sufferers from this disease went to the Alps, they did so in the face of solemn warnings from the medical profession that the change would be disastrous. But in these latter days it has been found that change to cold, dry places and to high elevations has produced some of the best results in the climatic treatment of phthisis.

If there were any uniformity in the relation between disease and change of air, that is if any particular kind of change were always advisable when relief was sought from a given affection, the explanation of the good effects produced might be easy. But there is no such uniformity. For instance, take the so-called hay fever, a disease upon which the appropriate change of air produces so rapid and pronounced an effect that the cure is sometimes almost instantaneous. Sufferers from this disease in the New England and Middle States find in the White Mountains, and especially in the particular mountain known as Jefferson Hill, a spot where they become at once entirely free from their troublesome malady. The accepted explanation of this used to be that the plant whose pollen was supposed to cause hay fever did not grow on Jefferson Hill. Now that the pollen theory has dropped into the background to give place to germs, it might be said that the germ of hay fever could not flourish in the atmosphere about Jefferson Hill. But here is a fact that rather demolishes this theory: A Minnesota victim of hay fever may go to a Massachusetts sea-port and find instantaneous relief, while in that very sea-port there would be sufferers from hay fever who were obliged to seek relief in the mountains. Evidently the association of the germ or pollen-producing plant with particular localities will not stand the test.

The fact that stands out most conspicuously in this matter of change of air is that it is the change and not the particular change that does the good. This does not mean that it makes no difference in any case to what climate the invalid goes; some changes are infinitely more beneficial than others, but the great and underlying virtue is to be foun in the mere change itself. It is marvellous how great an effect can in some instances be produced by a very slight change of air, the change from a city to its suburbs or even from one part of a town to another. Children are particularly susceptible to the effects of change of air, and a child apparently moribund may be recalled to life by transportation a few miles from its habitation. In seaboard cities the little victims of cholera infantum and kindred diseases placed on a steamer and carried down the harbor often show wonderful improvement from a few hours trip, and in many apparently hopeless case of this kind this has proved the turning point toward recovery.

An explanation of the *modus operandi* of a change of air in benefiting the sick has lately been offered by a writer in the *National Review*, an explanation so ingenious, so logical and in many respects so satisfactory that it deserves more than a passing notice. This writer, Dr. Louis Robinson, offers what he calls the biological solution of the problem. After calling attention to the fact that the duration of man's existence since civilzation appeared is but a brief interval compared to the ages during which he existed in a savage state, he claims that habits pursued during long periods of time in that early state should be expected to have left their impression upon man's organization. One of these habits would be that of wandering freely and widely according as man was impelled by change of season or variation in the supply of food. That there should be changes in the human body to accord with this wandering life is to be reasonably expected from what has been learned through the development of the Darwinian theory. The result would be that although in health civilized man might get on very well while living in one spot, under diseased conditions when the struggle between the health conserving forces of the body and the powers seeking to destroy it was a close one, the slight advantage to be gained from the better adaptation of the organism to a change of surroundings might be just enough to turn the scale to the side of recovery.

This is an explanation that would suit the fact that the mere change of air is in itself so often beneficial. The peculiar advantages of particular changes for special diseases is probably due to local causes that make one region less favorable than another for the growth and multiplication of certain disease germs. The biological explanation is also supported by observations upon the lower animals. For instance, it is found that wild animals connected with a travelling circus thrive better than the more carefully tended occupants of zoölogical gardens or other stationary menagerie. Among the first elephants to breed in captivity were those attached to Barnum's circus. Racehorses also are found to become stale if kept constantly upon one track instead of travelling about from one race-course to another. Change of air has further been found to benefit horses constantly employed in a city like those used by draymen. That the beneficial effects of change of air should be more marked in the lower animals than in man would be expected from their being so much nearer in time to the wild state.

CORRESPONDENCE.

THE OBSTETRICAL CALENDAR.

Editor of NORTHWESTERN LANCET:

SIR: Supplementary to your editorial of May 15, entitled "The Obstetrical Calendar," I have a rule for computing the date of *accouchement* which I obtained from Bedford's old book on obstetrics, and which I have depended upon for the last twenty seven years.

The rule is as follows: Get the last day of the last menstruation. Count back three months, then count forward ten days. For instance, if the last day or menstruation was May 15, the day of confinement would be February 25.

Like all other good rules, this is not infallible, but will hit over 90 per cent. of the cases and will enable the physician to fix the date within a day or two. In a large percentage of cases I have been able to locate the time within from twenty-four to forty-eight hours. I need not enumerate the convenience this affords to all parties concerned.

In the cases of both my own children the nurse was obtained less than twenty-four hours before the commencement of labor.

THEO. L. HATCH.

Owatonna, June 1, 1897.

A case of bone grafting is reported from Buffalo, N. Y., in which a five inch piece of bone from the femur of a sheep was transplanted into the tibia of a man suffering from comminuted fracture. The case is chiefly interesting because of the use of the X-rays during the process of repair, by which it was shown very early that union was taking place between the ends of the transplanted bone and the fragments of the tibia.

REPORTS OF SOCIETIES.

HENNEPIN COUNTY MEDICAL SOCIETY.

J. W. DUDLEY, M. D., SECRETARY.

REGULAR MEETING, FEBRUARY, 3, 1897.

Dr. **GEORGE D. HEAD** read a paper entitled

SOME EXPERIMENTS DEMONSTRATING THE USE OF BUREAU TUBERCULIN AS A DIAGNOSTIC AGENT IN PULMONARY TUBERCULOSIS.

See page 121.

Dr. **DUNN** said he was glad to have heard this very excellent paper as he had been of late practically interested in the subject. His observations, however, lacked the accuracy and system of Dr. **HEAD'S**, so that perhaps he could not profitably discuss the subject, yet he could not forbear to express his impressions.

During the first year or so of the tuberculin reign he had kept watch of the trend of the professional opinion until he learned that there was more than a suspicion in very able minds that its use was not altogether without danger, and all the world soon after having doubted its efficacy for cure, he had dropped the subject entirely until about a year ago when certain of his medical friends, particularly Prof. Quine, of Chicago, had recommended it highly as a diagnostic agent, especially in obscure urinary disorders in which the diagnosis by discovery of the bacilli is so laborious or at times impossible. Understanding from medical men in whom he had such confidence that the agent was both safe and sure, he had used it in something like a dozen obscure cases chiefly of renal and vesical disease.

In the first case through a misunderstanding of the strength of the solution, ten drops, about twice the amount indicated by Dr. **HEAD**, were injected in a strong young man with a moderate pyuria of renal origin and presenting in some respects the course of a tubercular pyelitis, but in which repeated examinations failed to detect tubercle bacilli. Within twelve hours there was a terrible reaction, chill, nausea, temperature 105° etc., followed by cerebral and circulatory disturbance of an alarming nature. The reaction was alarming and the patient remained blue, somnolent, and unable to take food for several days. His fears were hardly dispersed when several days later a repetition of the same reaction occurred, and to make a long story short, for he had not the exact data at hand, this was repeated time and again so that he had to watch the patient for some six weeks in the hospital before he recovered, and indeed when he left he was weak and far from his forme dition. Yet bacilli were never found in the u after this decided shaking up. In the subseque case the dose was reduced to five drops or about the quantity indicated in the paper. In some he got reactions, in some he got none, and in one of the most important cases where he had diagnosed pyelitis probably calculous, but a colleague had thought the tubercular form quite as probable and advised using tuberculin as a test, there was no result for some sixteen hours when malaise and a temperature of a hundred was noted. He must confess that he had found little comfort or satisfaction in his limited use of tuberculin as a diagnostic agent, and after hearing the doctor's paper, which he appreciated most highly, he must say that he should have little use for tuberculin for the present unless the doctor's further investigations should change his mind.

The question might be surveyed in this way. It is only in the rare cases, viz: those in which clinical signs, history, and repeated failure to find bacilli, leave us in doubt, that we think for a moment of resorting to tuberculin for diagnosis. The cases are but few in which the good clinician needs its help. Now I submit if it be not almost absolutely infallible, it is practically useless. If as I understand from this discussion there be a small possibility that certain non-tubercular subjects will give a reaction, and again that a certain few tubercular subjects will fail to give a reaction with a certain standard dose of tuberculin, and yet again that, accepting so limited a range as two degrees, there may be some doubt whether our reaction be in fact a reaction or a pseudo reaction, I maintain that for practical purposes, it is perfectly useless as a diagnostic agent, whatever it may do in clearing tubercular subjects where we need not its diagnostic aid to confirm what we already know but too well, and particularly should it be condemmed if it was open to the slightest danger to the patient.

In reply to Dr. **HEAD**, Dr. **DUNN** said further that of course we were to make use of diagnostic means far from infallible, under ordinary circumstances, but under these extraordinary conditions, where other means already approached infallibility quite closely, it was both fair and sensible to require the further test to be infallible. In diagnosis we should always commence by the simplest, easiest, safest and most convenient means, resorting to the complex, more difficult and cumberous only as others fail, and as the cases were sifted more and more, the diagnostic measure must be more and more sure to be of practical utility.

Then there was a great difference between a measure which, if infallible in a negative direction, was absolutely infallible in a positive direction, and one liable to err both positively and negatively. He feared tuberculin might be a measure which leaked slightly at both ends and perhaps in the middle, while the find of the bacillus was less trouble to the patient and infallible at least at the positive end.

Dr. Stewart: I have been greatly interested in Dr. Head's paper, but fear he will hardly be able to accomplish exactly what he set out to do.

When Koch's tuberculin was first in vogue, Dr. Beard and I treated quite a number of tubercular patients by this means, and administered some 2000 injections.

While I believe thoroughly in the diagnostic powers of tuberculin, my experience leads me to believe that there is a great individual variation as regards susceptibility to the drug, both as to the amount needed to cause a reaction, and also in the length of time after injection, before such reactions take place.

All our patients were put to bed after being proved tubercular by the microscopic examination of their sputum, and kept under observation several days before injection. Then they were given a minimum dose of tuberculin, and their temperature taken every two hours.

After two days, if there was no reaction, the dose was increased gradually until a distinct reaction was secured, and this amount was then repeated at intervals of two days, until the reaction ceased to be marked, when the dose was again increased.

As my memory serves me, there was quite a variation in the amount needed to cause the first reaction, and in at least two cases the occurrence of the reaction was postponed for over twenty-four hours.

Under the above mentioned precautions it is interesting to note that the only non-tubercular case which gave a characteristic reaction was an old pleuritic case, and here the reaction only occurred while the patient was menstruating, being absent before and after.

I should therefore doubt the possibility of establishing a dose and time limit, which would invariably diagnose or exclude tuberculosis.

I should like to sound a note of warning concerning the indiscriminate use of tuberculin for diagnostic purposes, in other than pulmonary cases.

I believe that there is a certain element of danger in such practice, especially in meningeal, intestinal and probably in renal cases, and I think that a majority of the better part of the profession will support me in this belief.

BOOK NOTICES.

The Diseases of the Stomach. By Dr. C. A. Ewald, Extraordinary Professor of Medicine at the University of Berlin; etc. Translated and Edited with Numerous Additions, from the Third German Edition, by Morris Manges, A. M., M. D., Assistant Visiting Physician to Mount Sinai Hospital; etc. Second Revised Edition. New York: D. Appleton & Co. 1897.

The modern treatment of diseases of the stomach is a very scientific matter, involving careful and painstaking diagnosis by means of the application of numerous chemical and mechanical tests. To prescribe for a stomach affection from a mere rehearsal of the symptoms is in these days as old fashioned and obsolete a way of practising medicine as it would be to attempt to manage a case of disease of the lungs or heart without resorting to auscultation and percussion.

It is to enable the practitioner to apply the most modern and approved methods of diagnosis and treatment to diseases of the stomach that this book of Ewald has been written. It is a complete and trustworthy guide to the management of this difficult class of cases, its writer being second to none as an authority upon gastric affections. So rapid are the changes and improvements in this branch of medicine that a new edition was called for but three years after the original publication of the work in English.

Diseases of the Ear, Nose and Throat. By Seth Scott Bishop, M. D., LL. D. Professor in the Chicago Post-Graduate Medical School and Hospital; etc. Illustrated. Phila: New York and Chicago: The F. A. Davis Company. 1897. [Price $4.00].

Written in response to requests from students and general practitioners for a book adapted to their needs, this work is by no means merely an elementary treatise. It contains much from the author's own experience and is a valuable contribution to the literature of this subject. At the same time its main object is kept in view and it is just the book for the man to use who is out of reach of specialists to whom he can refer cases, or for the general practitioner who is gradually changing his practice to a specialty, that is becoming a specialist in the most approved way.

The combination of ear, nose and throat is an eminently proper one, since the diseases of these parts are closely allied. The man who said that the ear begins at the anterior nares made a happy hit, and it is none the less true that many affections of the larynx and even of the trachea and bronchi have their starting point in the nose. A specialty which groups these affections is well founded, and every such specialist will be sure to welcome Dr. Bishop's book.

Clinical Lessons on Nervous Diseases. By S. Weir Mitchell, M. D., LL. D., Edin., Member of the National Academy of Sciences; etc. Phila: and New York: Lea Brothers & Co. 1897. [Price, $2.50].

The author has collected here a number of most interesting and instructive cases and has described them in a way that is really fascinating, giving to this little book a literary as well as a scientific value. This is not surprising when it is remembered that Dr. Mitchell's fame as a writer of high class fiction is little less than his reputation as a specialist in nervous diseases.

The clinics here described remind one of the famous lectures of Charcot, which have been made the subject of the artist as well as of the writer. No one can fail to recognize that a great master is dealing with these subjects, which to the average medical man are the most intricate and difficult problems he is called upon to solve, and none can read these lectures without finding that they richly reward him for his time.

WARNER'S POCKET MEDICAL DICTIONARY OF TODAY. By Wm. R. Warner. Published at Phila: by the Author. 1897. [Price, 75 cts.]

This handy little volume contains 10,000 of the principal terms used in medicine with their definitions and correct pronounciation. The definitions are naturally brief as befits a work intended for the pocket, but brevity is a highly admirable quality in a definition and one too seldom met with.

THE JUNE MAGAZINES.

The Atlantic has some notable articles, such, for instance, as Dr. Shaw's on "The Municipal Problem and the Greater New York," Prof. Wm. J. Shearer's "The Lockstep of the Public Schools," and "On Being Civilized Too Much" by Henry C. Merwin. The last is an exceedingly well written article, and is full of new and interesting thoughts. Every reader of *The Atlantic* will regret that "Cheerful Yesterdays" has come to even a temporary end; but T.W. Higginson does not long remain out of *The Atlantic*, and so we shall look forward with pleasure to his reappearance.

Harper's is rich in good things. "The Celebreties of the House of Commons" is an attractive title, but the article under this title by Mr. T. P. O'Conner, a member of the house, is both actractive and instructive. The same may be said of Mr. Poultney Bigelowe's Zululand and the Boers in his series of articles on "White Man's Africa." Dr. H. S. Williams writes a paper on "Meteorological Progress of the Century," which ought to put to shame a lot of weather sooth-sayers, and the hosts who give credence to their writings. Mr. Charles Moore tells, in "Henry Gladwin and the Siege of Pontiac," how Detroit held out against a terrible siege led by this treacherous warrior, resulting in its forever remaining in the hands of Englishmen.

The Cosmopolitan presents a table of contents that is hardly equaled in interest by the articles of any other June magazine. First among them is the "Secret History of the Garfield-Conkling Tragedy." The writer, Mr. T. B. Connery, was the editor of the *N. Y. Herald*, and as Mr. Conkling would not resign until he had received the promise of the *Herald's* support, and as no one, in Mr. Bennett's absence in Europe, except Mr. Connery could promise this support, he came into close contact with Mr. Conkling. His estimate of this great politician, though not creditable to the politician, is such as the world will eventually adopt. Peter Mac Queen gives a very instructive article on "Constantinople," which is full of interest to every person who reads the current history of the world. Besides the above the articles on "Marlborough House" and on "Poultry Farming" are worthy of mention. Such articles, with many others, and all beautifully illustrated, make one wonder how so much can be given for ten cents.

The Review of Reviews, as usual, has much that one can never find elsewhere, and much that one wants to know. Under the general heading, "The Progress of the World," one can learn, in two or three pages, more about the wars in Cuba and Greece than he will learn in a month's reading of the daily press. And what is true of the magazine's departments is true of its general articles, which are always timely and are by writers who have a right to speak on the subjects treated. No other article in the magazine is attracting so much attention from the the press of the counry as that by Dr. Frank Allport, of Minneapolis, on "Defective Eyesight in American Children." Dr. Allport tells of the work done in the Minneapolis schools, where over 23,000 children had their eyes examined, with results that are in some respects very remarkable. For instance in one building the per centage of defective eyes was found to be 64. The great importance of such an examination is fully realized when this abnormal per centage is traced to defective hygienic conditions, which may mean more than the partial loss of eyesight. The article is remarkable for the amount of information given within a few pages.

MISCELLANY.

BOOKS AND PAMPHLETS RECEIVED.

A Handbook of Medical Climatology. By S. Edwin Solly, M. D., M. R. C. S. Illustrated. Phila: Lea Brothers & Co. 1897. Price, $4.00

A System of Practical Therapeutics. By Hobart Amory Hare, M. D. Volume IV. Illustrated. Phila: Lea Brothers & Co. 1897. Price in Cloth, $6.00. To Subscribers to the Systems, $5.00.

Sterilized Gauze in Pelvic Surgery. By Thomas H. Hawkins, A. M., M. S. Reprint.

A Brief Study of the Ophthalmic Conditions in a Case of Cerebellar Tumor: Autopsy. By Charles A. Oliver, A. M., M. D. Reprint.

Description of a Successful Operation for Blepharoplastry. Embracing the Outer Halves of Both the Upper and the Lower Lids by a Single Split Flap, Taken from the Forehead for Epithelioma. By Charles A. Oliver, A. M., M. D. Reprint.

Ectopic Gestation. By H. J. Boldt, M. D. Reprint.

The Causes of Death After Abdominal Section. By H. J. Boldt, M. D. Reprint.

Vaginal Extirpation of the Uterus and Adnexa in Pelvic Suppuration and Septic Puerperal Metritis and Peritonitis. By H. J. Boldt, M. D. Reprint.

Cancer of the Rectum. By James P. Tuttle, M. D. Reprint.

Strophanthus: A Clinical Study. By Reynold W. Wilcox, M. D., LL. D. Reprint.

The Significance of Palatal Deformities in Idiots. By Walter Channing, M. D. Reprint.

The Relation of the Medical Profession to School Education. By Walter Channing, M. D. Reprint.

NOTES.

RECENT CLINICAL RECORD OF LACTOPHENIN.

Pediatrics (March 15, 1897) quotes from a "Report on New Remedies," by Dr. P. Phillip (*Archiv. fuer Kinderheilkunde*):

"Stein, Strauss, Schlutius and Riede publish their experience with lactophenin. Its sedative qualities, which make it useful, particularly in typhoid fever, are praised by most of his friends. According to Stein it may be used wherever phenacetin is indicated. Because of its relative safety and possibility of longer use it is much superior to phenacetin. Riede calls it a specific in acute articular rheumatism, producing no ear symptoms or depression of the heart, as does salicylic acid and salophen."

This summary of the therapeutic value of lactophenin has been variously confirmed by clinical reports during the past year from sources widely apart. We note, for instance, in a report on "Treatment of Typhoid Fever in Children," by Dr. F. Gordon Morrill, visiting physician at the Children's Hospital of Boston, Mass. (in *Archives of Pediatrics*, March, 1897) that lactophenin is used in that institution, and that 3 to 8 grain doses "are very effective, and do no harm, as far as my experience goes;" lactophenin produces a drop of 3.5° F. in four hours, according to careful records. "Restful sleep may often be obtained in this way."

Dr. Brodnax says (in *Medical Summary*, Feb., 1897) it is "a pleasant pain reliever. The dose is small, no cyanosis has been noted as yet, and the restful sleep that follows 5 grains (for adults), on retiring, is as near natural sleep as possible. So far as I have experimented on myself and others, I find no increase of the dose necessary to produce the desired result. Where the continued use is wanted, smaller doses will answer, say two grains every hour or two."

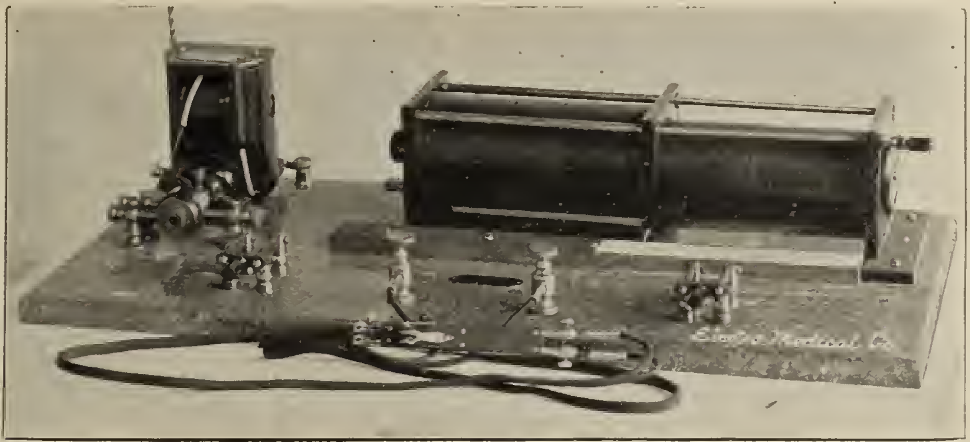
Dr. Chas. S. Potts, reporting clinical record of 14 cases treated with lactophenin at the University of Pennsylvania Hospital (*Therapeutic Gazette*, January, 1897) concludes "that lactophenin is a safe and efficient agent for the relief of pain."

Dr. Beverly Drake Harrison, in a paper before the Upper Peninsula (Mich.) Medical Association on "Treatment of Typhoid Fever" (*Physician and Surgeon*, Nov., 1896), basing his methods on experience in 500 cases with only two deaths, recommends lactophenin "to eliminate toxins and to promote skin drainage;" he says, it has a calming and hypnotic effect, no influence on the heart, and breathing remains unaffected, while the temperature is reduced gradually. His testimony is thus summarized: "I cannot speak too highly of lactophenin as an antipyretic and hypnotic. I have used it altogether in my practice during the past three years to the exclusion of all other antipyretics, and I have yet to learn of a single case in which it had the slightest depressing effect upon the heart or circulation."

Dr. W. C. Buckley, of Philadelphia, says in *The Laryngoscope*, Feb., 1897): Lactophenin reduces abnormal temperature, but does not seem to exert any marked influence upon the circulation or respiration. I have used it in pneumonia, influenza, scarlatina, acute tuberculosis accompanied by fever, and septicæmia, with excellent results. In the high temperature and restlessness of enteric fever (typhoid) it has also served me a most excellent purpose; here a child may take one or two grains with pleasant effect. The full adult dose is from four to sixteen grains. In giving this remedy, the proper plan is to begin with small doses, and increase according to the effect produced.

Dr. Buckley publishes an additional report, "Lactophenin and Pain," giving clinical records of 13 cases, in the *Medical Summary*, April, 1897, in which he shows the wide range of usefulness of lactophenin as analgesic and antipyretic.

The foregoing gives but a glimpse at the most recent reports. Dr. J. Homer Coulter (in *The Journal Amer. Med. Ass'n*, Nov. 7, 1896) endorses it strongly in the treatment of quinsy; and Dr. S. V. Clevenger (in same journal, Jan. 30, 1897) in a classical essay on "Pain and Its Therapeusis" con-



siders its whole range of therapeutic usefulness, endorsing it unreservedly on its record and his own confirmatory experience. Many other reports have appeared in American medical journals during the past year, all tending to the same conclusion: that lactophenin is a safe, efficient and reliable antipyretic with predominating analgesic and hypnotic properties. (*St. Louis M. and S. Journal.*)

I have prescribed bromidia with pronounced success in several cases of nervousness and restlessness, and in one case of acute cystitis. I have combined papine with bromidia which gave instant relief. Parenthetically, I may say I have personally used a teaspoonful of bromidia, after having successively lost several nights rest and procured a refreshing night's rest with no bad after-effects.

CHAS. E. QUETIL, M. D.

Philadelphia, Pa., Feb. 23, 1897.

The Hungarian Government permits women to study medicine if they so desire, but one of the professors at the University of Budapest has recently proclaimed that he has something to say in the matter. Of the five women now studying medicine there, one has a remarkably fine head of hair, which the professor of surgery says must come off before she can be permitted to attend his clinics. The reason he gives for his prohibition is that "wool carries infection."—*Medical Review.*

Dr. L. DeRudder, Marcus, Wash.: I use "Sander & Sons' Ecalyptol" in surgical cases and deep wounds, with speedy and excellent results; the formation of pus almost immediately ceases, and a healthy granulation succeeds. I prescribe it for internal use in sicknesses of a septic nature, for which I consider it the best specific. Eight to ten drops, with some syrup, every hour.

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This apparatus is made for use on 110 to 120 volt direct circulated, and is designed for producing a sinusoidal current with means for regulating the frequencies of alternations, and for electrical cautery work. The only apparatus which has been placed at the disposal of physicians heretofore for use with 110 or 120 volt direct current has been large rheostats or shunt devices which consume the entire amount of amperage necessary for a cautery electrode direct from the current, which is a serious disadvantage, as the amperage required to heat an electrode ranges from 10 ampere up to 35, above the limit allowed on a three wire system, and also above the carrying capacity of the wiring generally used in office buildings.

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Physicians whose offices are equipped with a current will find this instrument of great assistance, and it is also suitable for hospital work.

The device consists of a small motor upon the shaft of which is mounted a communicator provided with two collecting rings which are connected at points diametrically apposed. The current taken from these collecting rings which is now alternating, is led into a primary circuit of the transformer or large coil, which is shown to the right of cut. The primary is composed of a large number of turns of fine insulated wire wound on a hollow hard rubber spool, and operated by a crank and screw device for sliding over the secondary coil.

The secondary winding used for the cautery is composed of a few turns of thick wire wound around a core of annealed iron wires. And a secondary used for the sinusoidal current is composed of a great number of turns of fine wire wound around the same core with the coarse wire; the whole being enclosed in a thin shell of hard rubber. Upon moving the primary coil to the right or over the secondary the current is increased and vice versa, both for the cautery and sinusoidal currents, allowing a most perfect regulation. It is used for illuminating incandescent lamps as well as for galvano cautery and sinusoidal purposes.

The apparatus is mounted on a highly polished marble base, and is provided with a cord and plug attachment for connecting the instrument from any lamp socket. It is manufactured by the Electro Medical Supply Co., 52 State St., Chicago, Ill.

SPURIOUS COCA WINES.

The *British Medical Jonrnal*, in its issue for January 23, and again in that for February 6, speaks of the dangers that attend the popular use of so-called coca wine—that is, some kind of wine in which a salt of cocaine is dissolved. For the most part, the wine is of poor quality, but sweetened and highly fortified with rectified spirit. The amount of cocaine contained in many of these products is variable, too, and in prescribing them one really does not know what doses of that drug he is ordering. Moreover, the contention seems reasonable that the tonic and stimulant virtues of a real wine of coca—such, for example, as the well-known Vin Mariani—do not depend altogether upon the cocaine contained in it.—*New York Medical Journal*, March 20, 1897.

By what name should a physician prescribe "the drled juice of the unripe fruit of the pawpaw (*Carica papaya*)?" Only by its legitimate name, Papain, as it has been specified in all standard text-books for 20 years and more. Trade-marked synonyms should be eschewed, the reason is self-evident. But when prescribing Papain it is perfectly proper to specify "Boehringer's (or B. & S.)"—for this firm supplies *a purified product*, all tested to the standard of solvent power, and hence reliable. Boehringer & Soehne, 7 Cedar St., New York, will send the test on application; for literature see all text-books.—*Ex.*

Deering J. Roberts, M. D. Editor *Southern Practitioner*, Nashville, Tenn., states (original paper, "Nervous Diseases and Treatment"): "Neurosine, not containing opium, morphia or chloral, makes it more commendable, as we all know the dangers resulting from the use of such hypnotics and narcotics, and the general unsuitability of drugs of this class in the treatment of all nervous diseases. I have found Neurosine so uniformly satisfactory that I but deem it my duty to let others know the benefit I have derived from its use."

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LECTURES AND ADDRESSES.

APPENDICITIS FROM A SURGICAL STANDPOINT.

A Lecture Delivered to the Senior Class at the Medical Department of the University of Minnesota.

By James H. Dunn, M. D.

Professor of Clinical Surgery.

Gentlemen:

Those of you who have attended my clinics will remember four cases of appendicitis upon which I have recently operated, discussed the histories, shown the special conditions, the results and the after treatment. I shall utilize the material thus demonstrated and the specimens recently recovered from other cases, with these drawings and diagrams, in briefly reviewing the more salient points of our teaching on this still perplexing topic.

En preface, let me remark that in my student days, and indeed until within a dozen years, appendicitis (the word) did not exist; but we have reason to believe that appendicitis (the disease) was then not less frequent than today, since every community had its cases of peritonitis, of perityphlitic abscess, recurrent colics, obscure fevers, etc. In short, the difference between then and now is one of diagnosis. We are no longer contented with a diagnosis of peritonitis, but search for, and usually find, its cause or source. The return of "peritonitis" as a cause of death is no longer satisfactory to the Health Office. Such a certificate is now promptly returned with the inquiry, "what was the source or variety of the peritonitis?" The same secondary phenomena which we today recognize as due to appendicular leakage, and hence collectively and in brief term appendicitis, confronted our predecessors. They recognized even quite fully the more common and diverse secondary manifestations, but failing to discover their common origin naturally regarded different cases as distinct diseases. Their perityphlitis corresponded to a class of cases in which the infection spread upward along the ascending colon or ended in abscesses pointing in the groin. Other more fulminating cases were simply peritonitis, etc. The difficulty of so rapidly routing errors established in the post-graduate mind has necessitated great reiteration of a single central fact, viz: the appendicular origin of these infections. This fact, though fundamental, basic, would now seem very simple, and fully established. To the unformed opinions of the rising generation it need not receive exaggerated emphasis; in fact, it appears to me not unnecessary to remind you that a series of these cases as they come before us present in reality very different conditions, and that the label, appendicitis, gives but one important bit of information, viz: some phase or stage of some infection having a source in the appendix vermiformis. To regard the results of a leaky appendix as an approximately definite disease entity described by the term appendicitis were little less logical than to group all infections having a source in the finger as dactylitis. But time forbids criticism or eulogy of the past, historical, nosological or otherwise; we must get at the pith of the practical present.

To my mind the key to the surgical aspect of this matter is found in the fact that "appendicitis" is *intestinal perforation.* That there is an earlier stage in the pathology I fully recognize.

Even if we knew this earlier stage, we might appropriately leave its consideration to our medical colleagues, to whom it belongs. However, I may be permitted to say that I can rarely recognize appendicular disease before infection has passed the walls of this organ, and find little beyond theory as to this ultimate pathology. Appendicitis (at least with very rare exception) can only be of surgical interest when this organ allows the transit of sepsis, i. e., admits infection to the adjacent absorbent tissues. To resort to analogy: an enteritis, or a gastritis, may, and often does, exist, but it occurs to no one to call upon surgery for aid, unless, as occasionally happens, the organ concerned perforates; or, as also occurs without perforation, becomes pervious to and transmits infection into the connective tissue or into the peritoneal cavity. Thus ulcerations of the stomach, of the intestine, of the gall bladder, of the colon, have often suddenly had engrafted upon their phenomena those of peritonitis or intraperitoneal sepsis, upon the prompt recognition of which surgery has on several occasions safely closed these leaks.

The conditions before us in appendicitis are strongly analogous with these slight variations, viz:

First, this little, comparatively infinitesimal rudiment is the source of intestinal leakage incomparably more often than all the many feet of remaining alimentary canal together. In a score of years, if I may judge from my own experience, one meets perchance with two or three cases of intraperitoneal infection from gastric ulcers, perhaps a few typhoid or other intestinal leaks, a few gunshot or other traumatic perforations, etc.; but in the meantime one or two hundred leaky appendixes may be observed. As remarked, why the mucosa of this small bit of intestinal tissue so often becomes leaky concerns little the surgical aspect of the matter. Suffice it to observe that rudimentary structures have a lower vitality, less resistance and less reparative power than others. Besides, the small calibre, the *cul-de-sac* structure and the location at the turn of the intestinal cloaca favor stagnation of irritating matter. Perhaps vascular and nerve defects may play a part in the weakness shown by this organ. According to Bryant, the larger the calibre the greater the tendency to disease; which observation, if true, may explain the greater frequency in males and in early and middle life, since the appendix appears to be smaller in the female, and decreases after middle life in both sexes. I should however doubt the accuracy of this explanation, i. e., the deduction. The protection of healthy epithelium once lost, we need not look far for the septic invaders. We all know that the intestinal canal, never sterile, frequently teems with a variety of microbes. Of these the colon bacillus appears to be the most constant and important, though the pus cocci and others are frequently present. It is only necessary to remember the great variability in the virulence and pathogenetic power of bacteria in general and the colon bacillus in particular under varying circumstances to appreciate one of the factors which give a variety to the phenomena of appendicitis such as preclude precise formulation into strict classes and varieties.

Second, the necrobiological processes which precede gastric and intestinal leakage are for the most part accompanied by recognizable symptoms; while the appendix so much in evidence as an avenue of sepsis appears to give little yet recognized notice of the primary disorders which doubtless always precede the phenomena now recognized and termed appendicitis.

Third, this unimportant organ has—whether in view of its weakness for leaking or not I cannot say—been fortunately placed in a corner of the abdomen in which, if perforation must take place, the wonderfully defensive peritoneum has the best opportunity of putting it and the invading infective germs to which it so readily opens the door, out of the enclosure, so to speak. Were this weak spot placed more deeply and centrally within the abdomen, amid the more movable structures, it may be well doubted whether nature could deal with its failings as successfully as under the present anatomical conditions.

I hope to impress upon you that the ever varying conditions brought before us labelled appendicitis have little in common, except that all are infections, primarily entering the system through a defective* appendix. Appendicitis is not only not a definite entity or state, but is less so than the average pathological type commonly supplied with a more or less specific name. As in external infections, the course, phenomena and results depend upon a great multitude of circumstances, such as the kind, amount, virulence, suddenness, etc., of the infection; the resistance and idiosyncrasies of the individual attacked; the biological peculiarities of the tissues involved. The course of any infection, and perhaps especially those of the appendix, is furthermore influenced by many circumstances more or less accidental, such as personal anatomical relations, concurrent or subsequent management, etc.

Now, I have said that appendicitis is essentially an intestinal perforation and conseqently its phenomena those of intra-abdominal infection. You know, or think you know, that intestinal perforation is a grave matter. That is quite true, but you must not jump to the conclusion that it is a necessarily fatal matter. Intestinal perforation is a danger chiefly because it is a certain exposure to infection gross and virulent, generally into a great lymph sac. But the peritoneum is not such a vulnerable and helpless structure as was once supposed. On the contrary, we find it a most wonderful defender and repairer of the structures in its keeping. Only its powers, like those of all other structures and creatures, are limited by conditions. There are conditions against which the peritoneum is powerless for defense, and there are yet others under which it exhibits a defense against infection and a repair and resolution of the devastations of disease unequalled by any other structure. Nor should it be forgotten that the infections of perforations may, and occasionally do, primarily enter the postperitoneal connective tissue between the mesenteric layers, without causing a decided peritonitis. The intestines, as you know, are in reality behind the peritoneum, and it is even possible for the appendix to perforate on the side of its mesentery. Indeed, it is a revolutionizing discovery of recent years that the peritoneum as a rule tends to shut out local infections and their products, so that inflammations primarily intraperitoneal very frequently become, sooner or later, extraperitoneal. Thus you must not forget that the phenomena, the results and the sequelæ of intestinal perforation, with the consequent infectious invasions of the peritoneum, will widely vary with a multitude of circumstances. Chief among these are: (a) the size of the perforation; (b) the suddenness of the perforation; (c) the location of the leak; (d) the resisting powers of the patient; and (e) the virulence of the infection.

Now let us glance over the specimens which we have encountered and reproduced in this drawing, beginning with figure 1, in which there is no visible perforation, not even marked ulceration of the mucosa; microscopic investigation shows the cells molecularly diseased, that is an invisible perforation or leakage, or, if it please you better, a condition of cells which gives no opposition to the ever vigilant microbes, which accordingly invade the neighboring structures. Now pass to the other end of this case list, and observe figure 10, representing the appendix in the case of a young man of thirty-one—removed thirty-six hours after the first symptoms of an acute appendicitis. Nearly the whole organ is gangrenous and sloughed away, leaving a hole in the intestinal tract of the size of a large revolver bullet, from which more fæces had extravasated than we find in a like period in an abdomen with fifteen revolver ball perforations of the intestine. Between these extremes, it is easy to draw from a moderate experience or from recorded cases every conceivable grade and shade of perforation. Again, as to the rapidity, we have only to reverse our specimens. In the last case, a mass of septic matter was hurled upon an unsuspecting peritoneum in less than thirty-six hours. This wonderfully defensive membrane had time to do almost nothing. As we review the others, we find cases in which the gross perforation evidently took place only after two, three or four days, the peritoneum in the meantime having thrown out a decided barrier about the dying organ; and yet others in which small and long continued leakings of septic matter have been met by a defense from the peritoneum so perfect and wonderful that the most careful observer is loath to believe that the appendix or the purulent exudation about it, had ever occupied an intraperitoneal position. In others we find the appendix crumpled, fixed, hidden away in a minute crevice somewhere about the caput coli, and when dug out presenting no visible or gross lesions, gangrenous or ulcerative. But close observation of the deformed mucosa discloses various small defects through which slight septic invasions have occurred at long or short intervals, and which account for the clinical histories of repeated slight attacks of pain and sepsis. Again, long months, even years, after an attack with apparent recovery, we find relapses followed in turn by weeks of moderate sepsis, slight induration and tenderness about the ascending colon. When at last the abdomen is opened, all may appear innocent, the peritoneum showing no scar of the past struggles, only absence of the appendix, and a collection behind the colon. Opening this in the loin, more or less fœtid pus may be evacuated, and the now extraperitoneal appendix dug out of this pus cavity. Again, take our first case this fall at the City Hospital. A., aged thirty-five, entered a weak, emaciated individual with a typhoid appearance, dry tongue and skin, irregular fever, occasional chills, sweats and diarrhœa. He had been very sick for six weeks. Further history in the condition of the patient was unobtainable. That he was suffering from severe and chronic sepsis was clear. Examination showing obscure tenderness and tumefaction in the right flank. The appendix had evidently been the port of entry of the now widely disseminated sepsis. I evacuted the abscess in the groin, and as the appendix was removable without opening the general cavity, it was extirpated. The autopsy a week later showed purulent foci in and under the liver and various other locations, and justified my prediction that operation at that time would scarcely rescue the already pyæmic patient. In our records he appears as an operative death under appendicitis. Some thoughtless persons, and strangely enough, mostly those who never lose appendicitis cases under medical treatment (their deaths are from peritonitis), are kind enough to see in this a death from operation. But you shall say. The man lived a week after the operation. The course of his sepsis appeared in no wise changed, either for better or worse, until he sank, gradually exhausted. We opened one of his many abscesses. That it was the fountain head of his sepsis was then of little moment, after lakes, bays and rivers of sepsis had long been established. The supply is of no consequence when the stores are more than sufficient to outlast the vitality. Now, the death was not from appendicitis, nor from operation, but from septico-pyæmia, the sequel of appendicitis, and against which the removal of the appendix and drainage of the iliac abscess had, and could have, no avail. Nor was there a general peritonitis. Those who speak and reason of appendicitis as a definite entity are pretty sure to fail to understand these matters, and certain to befog the most important questions in the minds of others. Only when reduced to the factors of appendicular leakage and sepsis is appendicitis a reasonably or relatively fixed quantity, lending a generic character to certain of its phenomena. The progress, the character and the results of this sepsis, like all others, are decidedly variable.

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*Even this primary appendicular defect, though ordinarily due to non-specific necrotic changes in the mucosa, occasionally owns a specific cause, e. g., traumatic, tubercular, typhoid, and indeed in at least one instance to actinomycosis.

FORMS.

Many attempts to relieve this manifestly absurd designation of such vastly variable conditions by a specific name, through qualifying adjectives, such as catarrhal, ulcerative, perforative, relapsing, suppurative, acute, chronic appendicitis, etc., have been made. While admitting a certain crude convenience in these much used terms, I find, in fact, no very clear cut varieties of the affection. As already mentioned, every conceivable variety and sequence of the known phenomena of sepsis under the conditions here offered may be observed. Nor does the existence of a given sequence of past phenomena often lend much support in forecasting the future behavior, in the same or other apparently similar cases. Thus, though cases subject to numerous slight attacks often continue this mild intermittent course, it is frequent to meet with every sort of exception. The first or the last attack may be light or severe. Cases long intermittent become remittent or chronic. Attacks once or many times evidently catarrhal, i. e., the infection largely limited to the mucosa, may after periods of relief, long or short, be followed by sudden gangrene and perforation. While cessation of hostilities is apparently more liable to follow a first or a second attack than after a long series, the most veteran relapsers do sometimes end in obliteration and peace.

PROGNOSIS.

But to return to the focal point of our topic. I have asserted that appendicitis is intestinal perforation; cautioned you against the hasty conclusion that nature is powerless against certain perforations; reminded that for the most part appendicular leaks are often slow, small and favorably located. It remains to inquire how capable is nature, unaided by knife and stitch, in mending these leaks. What is the prognosis? If you give ear to the superficial arguments of special pleaders, you will be confused by flat contradictions; one inferring that nature, aided by a modicum of nursing, salts and opium, cures in nearly every instance, while the other advocates appendectomy as the routine treatment and duty. If you carefully follow the discussions, you will find both deductions sound according to the premises. They lead to opposite results because the premises are always more or less assumed and false. The exact mortality or morbidity of appendicitis is as little known under exclusive medical as under routine surgical treatment. As yet, most statistical arguments are the veriest sieves with which each collector selects such facts as his measure retains. All depends upon the premises with which we start. First, are all, or only certain cases of appendicular leakage included in your concept of appendicitis? A certain observer may only be able to recognize certain forms of appendicitis, and these benign in their nature. Second, what do you imply by a cure? Escape from immediate death, convalescence for a month, a year, or a term of years? There are two sources, neither, I fear, very accurate, to which we may look for a proximate solution of this question. The study of a large number of consecutive cadavers with reference to the state of the appendix in those dying of other causes than appendicitis, and the patient and long continued study of the clinical history of a large number of subjects of this disease. Something has been accomplished in both directions. The examinations of Hawkins, Ribbert and Rolleston would indicate that in about one appendix in one hundred the lumen is found completely obliterated by fibrous tissue (figure 3). We must, I think, receive this as evidence of a natural cure of appendicular disease, perhaps of quite as complete and definite as that by surgical excision. That it is an exceptional and rare result is very evident. Very much more frequently are found as the probable results of past appendicular disease partial obliterations, and yet more frequently strictures, cystic distensions (figure 4), adhesions, distortions, indurations of the middle coat, etc. Though these latter conditions may give no active symptoms, they can scarcely be regarded as perfect cures, inasmuch as such crippled organs doubtless predispose to further accidents and recurrence. On the other hand, surgical cures are not without the minor inconveniences of scars and possible herniæ. Possibly the appendix may return to an absolutely normal condition, such as to leave no trace of past disease appreciable to the closest post mortem scrutiny, after a clear attack of appendicitis. Of this I know of no convincing proof, and any one familiar with general pathology must regard such a resolution, where such structures, mocosa, muscularis and serosa, are concerned in infectious processes, as exceedingly doubtful.

Now, if we carefully follow without prejudice a large number of cases or rather attacks of appendicitis clinically, we find:

First, a small proportion, somewhere between five and fifteen per cent., which perish of a peritonitis so rapid and diffuse that its appendicular origin is often unsuspected, and is only recognized by the good diagnostician, even sometimes defies a positive location of its origin to him further than upon the basis of exclusion and probability, unless demonstrated by operation or autopsy. With these cases medicine and nature have no business. Their only succor is prompt diagnosis and immediate operation. The perforation is gross, sudden. The septic invasion is overwhelming. A bullet hole in the caput coli is not more dangerous, rather less, because instantaneous action has not prepared increased microbic virulence, and its penetrating track calls immediate attention and unprejudiced teaching indicates the proper action. The treatment, clearly, should be the same—open, cleanse, close the rent.

Second, in the vast majority of appendicular leaks no such septic fulmination occurs. The invaders, entering more slowly, are met by a more or less vigorous defense. There is more or less time. The process is more localized. The sepsis may take one of many courses. A big exudate may appear, may soften into pus and point in one of many directions, or may gradually disappear in the most remarkable manner. The patient may appear to have completely recovered in a few days or in a few weeks; may partially or nearly recover, with iliac tenderness or a tendency to relapse; may linger in a septic condition for weeks or months; occasionally, while apparently recovering, may suddenly collapse from unexpected spread of infection; in short, may pursue all the many and devious courses of infections deeply intrenched within the body.

Only three things may be said with certainty. Such a patient is always in some danger, and his attendant has before him a treacherous and hidden enemy. A large percentage—just how many I do not know, certainly more than half, possible four-fifths—by hook or by crook, by resolution, by rupture into the bowel, or externally, recover more or less completely. If anyone knows how many recover completely and permanently, he has not yet, so far as I know, told. True, endless assertions, some in our present light quite preposterous, have been made; but a moment's scrutiny of the evidence upon which the assertions are made show it to be a little more than the general impressions of persons more or less prejudiced and unaccustomed to record and closely investigate their cases. If I were to give my own impressions, based upon a considerable experience and a study of the work of others, I should say that at least a good half of the cures are very incomplete, and soon or late further trouble ensues.

From all this I must conclude that by medical and natural means appendicitis is occasionally terminated by the most perfect cure—obliteration, though it is by no means certain that this process is always a result of appendicitis as we ordinarily recognize it. That each and every attack of appendicitis is always a potential danger; that the shrewd clinician may usually and with some accuracy, though never infallibly, or even very exactly, recognize the transition from potential to actual danger. That the organ once leaky, nature in all but a very small minority of the cases makes a very active and prolonged defense. But that nature's work is more often a defense than a decisive victory is becoming more and more evident.

This, however, need not of necessity imply a rejection of a measure of natural cure under certain conditions. Indeed, the surgeon is often quite willing to bide his time, coming to the rescue after preliminary work has been done. As we shall see, though a case be admittedly one for surgical treatment, the questions of when and how to best join nature's forces may need careful consideration.

SYMPTOMS AND DIAGNOSIS.

I deem any extended discussion of the symptoms of appendicitis unnecessary at this time, and shall simply repeat that they are essentially those of pain and sepsis. The pain of appendicitis is of great diagnostic importance, but requires close study of its character, course and associations, for accurate interpretation. It is of several varieties, evidently due to different causes, or rather, composed of different factors. Most acute attacks are announced by pain, sudden, severe and more or less diffused over the abdomen, or centering in the umbilical region. Evidently this early pain is due to peritoneal irritation, in response to the penetration of infection to that membrane, to disturbed intestinal peristalsis and to the increased swelling and tension in all acutely inflamed tissues. During the early hours, while the first two elements are uppermost, any very definite localization is often, almost as a rule, impossible or uncertain. However, after the first alarm, as the defense of the cells becomes organized and the troops, so to speak, begin to centre towards the point of attack, the pain, and especially the tenderness, centres there also. So that by twenty-four or thirty-six hours, except in those cases in which sudden, diffuse peritonitis overpowers and prevents any localization, there is little difficulty in eliciting the point of maximum tenderness. McBurney's point is the usual seat, simply because it is the usual location of the root of the appendix. If anatomical idiosyncrasies exist, the point of greatest tenderness is correspondingly shifted. Or, in the future course of the infection. it may follow the course of the pathological struggle, being most marked where the severest or most recent and active battle is going on. In the few fulminating cases, the peritonitis becoming general, almost from the first, this directing guide as to the origin of the infection fails us; and having diagnosticated peritonitis, we deduce its probable origin from other elements in the case history, such as previous attacks, exclusion of other probable causes, the rule of probabilities, etc. In slight or subacute, i. e., more localized and less threatening septic invasions, the alarm is less general, the pain and tenderness consequently from the first more clearly localized.

In any event, as the process localizes, comparative rigidity of the right rectus muscle further indicates subjacent local irritation. However, as the acute process passes into a subacute or chronic one, this rigidity gives way, and enables us to better feel the tumefaction caused by more or less abundant exudation, or yet later to an abnormal but less clear tumefaction, perhaps in part due to adherent intestines, omentum, etc.

But iliac pain alone does not justify a diagnosis of appendicitis, nor indeed any other "itis." Appendcitis from a practical, certainly from a surgical standpoint, is sepsis, hence always presents the distinct phenomena of infection. Most of us appreciate the puzzling almost protean variety in the phases of sepsis, and have to confess our difficulties in accounting for or interpreting the import of its dread appearances. If it is difficult to verbally describe an individual face so that you may unfailingly recognize it on sight, how impossible to usefully depict the kaleidoscopic aspect of sepsis by a brief reference to its ever fluctuating outlines.

Febrile reaction is very constant; in fact, disturbance of heat regulation in constant. Only when the amount or the peculiar character of the disturbing virus suddenly overpowers the organism is some elevation absent. Then a sudden fall or a subnormal temperature, with the signs of collapse, is more threatening and equally informing. The latter not rarely in evidence at a final stage when nature is about to capitulate, or indicative of sudden and profound extension of the infection in the intermediate course, is, so far as I know, never absolutely the earliest reaction in appendicitis. The temperature ordinarily oscillates between 100° and 104° in these infections; but further than as a general evidence of sepsis, the temperature alone is of little prognostic value. A careful study of its range and course in connection with other symptoms is highly useful. I have shown you a man with general suppurative peritonitis, with a pretty steady temperature of 99° and 100°, with very little abdominal tenderness, pain or distension. He came under observation after a week's sickness with appendicitis. His earlier symptoms were doubtless more definite. The full temperature range of an infection is usually very instructive; a short segment of such a chart may be most misleading. If the temperature, then, at any given time is of little use as a guide, a careful study of its course will none the less often furnish more or less valuable evidence as to what is going on.

The pulse is perhaps, with some exceptions, a better index in septic conditions, especially in such as involve a great lymph sac like the peritoneum, from which is rapidly pumped the toxines into the blood. It is usually markedly affected in every quality. Rapid, even out of proportion to the fever, feeble as vitality fails, it is usually small and hard in proportion to the acute peritoneal involvment. Yet we do find exceptions to this time honored peritoneal pulse, as in the case above mentioned. The countenance, morale and nervous state are often quite as portentous as temperature or pulse in profound sepsis. The clinician experienced in abdominal sepsis sometimes reads disaster in the patient's face when thermometer and watch indicate a fair or placid course. The pulse and general state tell more than the thermometer; but it is by all these factors studied connectedly and in relation to the course of the affection that we may draw conclusions closely approximating the progress and tendencies of the struggle, suspect the force, virulence and progress of the invaders, and trace the lines and strength of the defense which the organism is making.

Many other symptomatic phenomena deserve your study, but they are more or less incidental. Thus vomiting may or may not accompany the attack. I recently showed you a man who in the course of eleven months had a dozen or more severe attacks of epigastric pain, vomiting, with tenderness in the region of the hepatic fissure. In short, the history was so clearly that of cholelithiasis that I made the the exploratory incision for disease of the gall bladder, and finding appendicitis instead, closed the first incision and made an appendectomy, with complete relief of his painful and disabling disease. This is the only frank error in diagnosis with which I have thus far met in a considerable experience with appendicitis. A peculiar intestinal adhesion, evidently caused the misleading local tenderness, and doubtless had I been able to observe him during his attacks, this need not have led me astray. Coming from a distance, and operating upon an imperfect history, I was misled, as we often are when only a part of the facts and testimony can be elicited. Provided one may personally and sufficiently observe the case, or, being called in its later course, if one may secure a careful and intelligent history of the past evolution, error in diagnosis is rarely possible, save in the few cases where the symptoms of general peritonitis so suddenly follow perforation as to obscure the origin; or in women, where the question may arise as to whether the appendix or the right tube be the origin of the infection. Should the history and a careful pelvic examination fail to fully clear up the matter, as it nearly always does, there is not such a radical difference in the indications for treatment as to lead to fatal errors of action in the hands of the fully equipped abdominal surgeon, who should be ever on the alert for surprises, and always prepared for every possible emergency. Discovering the error before damage is done, he *reconnoiters*, closes his false incision with care, and may even sometimes compensate for the misfortune of an extra incision by the more complete survey of the conditions before proceeding to a new attack by the appropriate route. Such I feel was the outcome in the mistake above mentioned. The state of the lower digestive tract, too, is subject to no fixed rule, except that it is more or less functionally disturbed. Though constipation and more or less tympanitic distension is usual, diarrhœa and absence of meteorism are not very exceptional, at least in certain forms or stages of the disease.

I sometimes tire of the endless repetition of symptoms and diagnostic signs with which most medical works are replete. However long and elaborate, they are rarely complete. The more elaborate the more certainly they overdraw the average case, never fully fit an individual case, and always omit striking features of some cases. Some men are always meeting unusual and unique cases. Depend upon it, they are carrying around ready made formulæ to apply to cases, seeing cases, not with their own eyes but through so-called typical descriptions of others. There are, strictly speaking, no typical cases. Every case is individual in some small degree. He who sees only the usual in a given case sees equally with him who sees well enough to recognize in me a man, but distinguishes nothing different from any other individual of the species. The only really valuable symptomatology is that drawn from the physiology and pathology of the structures and agents involved. The study of infection under various conditions and circumstances teaches us a symptomatic alphabet which, once well learned, enables us to properly read reports coming from different actual engagements. The stereotyped symptomatology so much in vogue is necessarily a sortof rude picture language representing neither a particular biological battle nor a composite picture of all similar struggles; only a heaping together of such striking events and features as some one has seen or heard of, and which may convey very different impressions to different readers. It is therefore better to take one's symptomatology from and to base one's diagnosis upon a deep knowledge of the pathology, general and special, of infections in general and of the abdominal viscera in particular, rather than upon parallel columns of the symptoms of appendicitis and this or that neighboring "itis." Don't be deceived by words. Approach the case, not with a series of formulæ. striving to fit the latter to the former, but look for phœnomena, collate facts; then in the light of known physiology and pathology seek their rational rapport.

OCCURRENCE.

Appendicitis is presumably possible to all who possess an unobliterated appendix, regardless of age, sex, race or occupation. But experience shows the disease to be rare before the age of five and after fifty. The great majority of cases are met with between the ages of ten and thirty years, though it is not rare till after forty-five. It is about four times as common in the male as in the female sex. I cannot remember to have met with a well marked case in an adult woman, but in children sex appears much less prominently as a factor; and I have seen almost as many cases in girls under sixteen as in boys of like age. In the next two or three decades of life the difference is most striking. Cases of young and adult males are under observation very frequently. Occasionally young women up to twenty or so; then practically the females with this form of peritonitis disappear, to be replaced with the yet more frequent variety owning a tubal or uterine source. Thus the two chief sources of localized and general peritonitis are the uterine appendages and the vermiform appendix. I would not by this remark lead you to an exaggerated notion of peritonitis. For, on the one hand, peritonitis may play a great or a small röle in the history or in the deaths from appendicitis; and, on the other hand, peritonitis is but a word. The process is infection under special conditions. Today no special divinity doth hedge a peritoneum, not more than a king. It is well not to be deceived by words. Peritonitis is prone to carry a misty or mystic influence from the past. The infection of a specialized lymph sac is less cumbered with fixed ideas, and allows one to study facts unencumbered by fancies and traditions. Then you occasionally meet cases of appendicitis with which the peritoneum has done; but the infection has not yet by any means done with the patient.

(To be continued.)

ORIGINAL ARTICLES.

RABIES, WITH REPORTS OF CASES.*

By Arthur Sweeney, M. D.

St. Paul.

There are people who believe that the earth is flat, others who maintain that the sun moves while the earth is stationary, others who think that the earth is hollow and that we dwell on the inside of it. There are also some who profess to believe that such a disease as rabies does not exist. All of these prove their opinions to their satisfaction by the same class of testimony—negative evidence. They are apparently in a condition of "invincible ignorance" on this particular subject, and ordinary testimony which is satisfactory to others is unavailing in removing the fixed opinion from their minds. Some physicians of national reputation are to be found among this class. Spitzka has for years denied the existence of the disease and "proven" his thesis to the satisfaction of many doubters. Rosse, in a recent article, adduces much of this negative evidence. Gray, facetiously, doubts the genuineness of the condition, and Dulles, in a report of 78 cases, throws discredit upon the character of some of them.

Skepticism is commendable when it is intelligent and scientific; when otherwise it leads to useless controversy and to harm. The question of the existence of a disease is to be proven by affirmative evidence, by positive testimony. The evidence advanced by those who hold the adverse believe are:

First, its rarity.

Second, statistics of animals among whom the disease did not exist.

Third, confusion of testimony as to the nature of the disease.

Fourth, mistakes in diagnosis.

Fifth, simulation and hysterical forms.

Sixth, lack of definite pathological findings.

Seventh, occurrence of symptoms in other nervous diseases.

Eighth, testimony of physicians, who, though experienced, have never seen a case of rabies.

Analysis of the above objections shows their trivial nature. First, that the disease is rare does not prove that it does not exist; second, the fact that in certain localities dogs are free from the disease, is certainly of negative value; third, the different mistakes in diagnosis might as potently be urged against the existence of typhoid fever as against rabies; fourth, that hysteria simulates rabies is characteristic of that condition and does not militate against the genuine condition; fifth, some of the symptoms may occur in other nervous diseases, just as a cough is a symptom common to respiratory troubles; but the symptom complex of rabies is distinctive only of that condition; sixth, that physicians of large practice have never seen rabies is a puerile objection and might be urged as proof of the non-existence of typhus fever, many of the inland physicians never having seen a case. Spitzka's inoculation experiments with soap and other substances, are valueless, because he never presented a series of cases where the same condition has been transmitted rom animal to animal; nor has he demonstrated hat death was not the result of ordinary purulent nfection.

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*Read before the Minnesota Academy of Medicine, May 5, 1897.

Taken for what they purport to be, these objections are trifling, and are decidedly unscientific and misleading. They are also harmful in creating and providing a basis for the unreasoning skepticism prevalent among many physicians, and preventing prophylactic measures among infected communities. In the light of the positive and convincing proofs of the existence of rabies, the objections are fallacious and ridiculous. Pasteur's inoculation experiments have demonstrated beyond criticism the genuineness of the disease and its title to a position among the distinct and definite infectious diseases. In Minnesota the existence of the disease has been questioned upon the same grounds as detailed above, and the energy of the denials of skeptical physicians has impressed the laity to such an extent that it is only recently that any serious effort has been made to stamp out the disease. A year ago I reported three cases of rabies, in two of which the diagnosis had been confirmed by inoculation experiments upon rabbits. Since that time there have been three additional deaths from the disease, and in each the character of the condition has been scientifically proven. In addition to these cases among human beings, a careful study of the disease among dogs has been made, and the results confirm the conclusion that we have had in St. Paul and its suburbs an epidemic of rabies for the past two years. The only thing to be regretted is that the skepticism of physicians and of the laity has delayed to the present time all efforts at prophylaxis.

The report of Dr. Rothrock, assistant health commissioner of St. Paul, upon the inoculation experiments from the cord of rabid dogs, is of interest in this connection. The first case was that of a dog which came under observation November 20, 1896, and from whose cord two rabbits were inoculated. One died from the effects of the operation, the other remained well until December 14, when it was taken sick, with a loss of appetite, failing strength, increased reflexes, a tendency to incline the head to one side, and with final paralysis and death. The autopsy was negative, with the exception of an area of plastic lymph at the site of the inoculation. Another rabbit, No. 2, inoculated December 17, from No. 1, died January 14, with symptoms above described, and the post mortem revealed no especial changes, except an area of plastic lymph at the side of the inoculation.

From another dog, killed by chloroform after presenting rabid symptoms, on December 16, 1896, two rabbits were inoculated, one dying on the following day from hemorrhage, the other remaining well until December 31, when it lost its appetite, became feeble and emaciated, developed progressive weakness, terminating in paralysis and death on January 5, 1897. Post mortem appearances were not different from those above described. Another rabbit (No. 2) was inoculated from the cord of the above (No. 1) and died with characteristic symptoms on January 18, post mortem appearances being negative with the exception of a slight injection of the vessels of the brain. Further experiments in this case were cut short by the death of two rabbits inoculated from No. 2 on the third and fifth day from accidental complications. Two other cases of rabid dogs were made the subject of experiments by inoculation and gave similar evidence of the presence of the disease. In some of the rabbits the inoculation was not carried through many series, owing to mishaps, by which the inner table was not severed by trephining or by death of the animals from hemorrhage following the operation; but the general results of the experiments were such as to show that they were "actually dealing with a genuine epidemic of rabies."

The experiments of Dr. Wesbrook, bacteriologist of the State Board of Health, dealt with six cases of rabid dogs, and in each the diagnosis was unquestionably rabies. In several cases the experiments were carried through a series of four rabbits, and each animal died in from seven to twenty-one days. In the latter ones of each series the period of incubation was reduced from fourteen days to eight days. Dr. Wesbrook's full report has not yet been submitted.

These experiments with dogs have proven beyond question the existence of a focus of infection in St. Paul, which has probably existed over two years, and which has caused the death of six human beings.

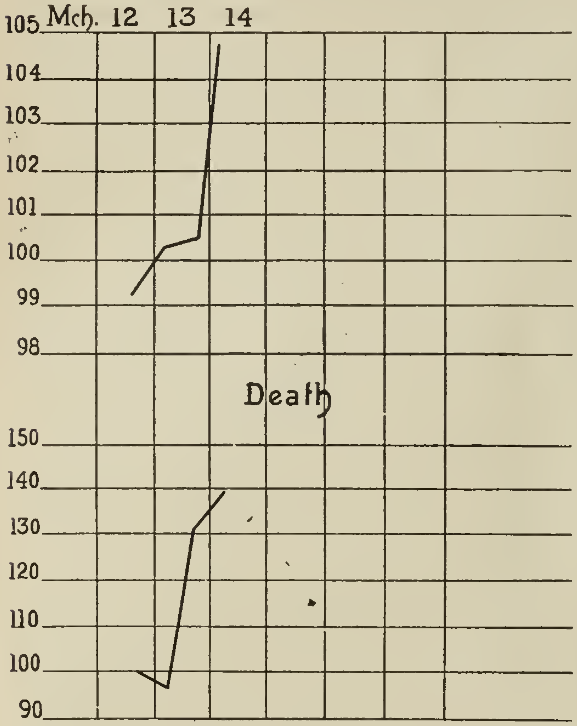
Case IV. P. C. F., aged 39, a teamster by occupation, was bitten by a small dog some time in the last of December, 1895, or the first part of January, 1896. The bite was on the left hand and consisted of an apparently trifling abrasion of the skin, with a few drops of blood. No attention was paid to it this time. The patient was of intemperate habits, and had many years before contracted syphilis, and had suffered during the previous five years from rheumatism. During the summer of 1895 he had a slight sunstroke. The family history was negative. Early in February he had strained his back while lifting, and went to a suburb where he had heard much discussion about an alleged case of rabies which had occurred in that town. For two weeks prior to March 8 he had slight pains in the chest, extending around to the back. On March 8, 1896, he complained of pain in the left wrist, extending up the arm over the chest and up the back of the neck. For the next few days this pain was severe. On March 9 he was feeling poorly, yawned and stretched a great deal and slept poorly on the night of the 9th. At two o'clock on the morning of the 10th he got up to get a drink of water, but he could not swallow it. He tried several times, but each time it strangled him. After this experience he was very nervous and excited, and believing he had rabies, his mental condition was very distressing. He remained in bed all day, his legs jerking at frequent intervals. He had during this day much difficulty in drinking, but he could eat solid food in small quantities. He did not sleep at all on the night of the 10th. On the 11th he had much headache and was very restless, refusing to drink water, and eating sparingly of solid food. On exposure to cold he shuddered much, and he complained that the draft from the door took his breath away. Under the influence of sixty grains of sulfonal he was quiet on the night of the 11th; but did not sleep, lying all night with wide open eyes. His diet so far had consisted of soft boiled eggs, oatmeal, bread, and a few spoonfuls of milk.

On the 12th noises on the street distressed him very much, and he was restless and nervous. I saw him on the afternoon of March 12 in consultation with Dr. Whitcomb. The patient was confined to his bed and had a temperature of 99.4° and a pulse of 100. The respirations were shallow, hurried and irregular, and his conversation was interrupted frequently to catch his breath. His face was pallid, drawn and anxious, with sunken eyes and twitching of the muscles of the mouth. When I touched him on the forehead with my cold finger he had a violent respiratory spasm and shrank back with a cry. Blowing upon the hands also produced it, and the suggestion and the sight of water produced a general shuddering of the body and loudly voiced complaints not to make him suffer. His mental state was one of anxiety and excitement, and he volunteered the statement that he thought he had hydrophobia, as he had heard in Faribault what the symptoms of the disease were. On my assurance that he was mistaken, he became somewhat calmer.

At the time of my examination, he complained of pain shooting from the wrist to the shoulder, of intense headache and insomnia. The grasp of the left hand was very much weaker than that of the right hand, and there was a marked loss of sensation in the arm and hand over the ulnar distributions up to the elbow. The tongue was protruded straight and without tremor and the salivary secretion was not excessive in amount, but rather tenaceous. The pupils reacted sluggishly to light and accommodation, and a lighted match passed before his eyes caused some gasping. There was no paralysis of the external muscles of the eyes. The knee jerks and superficial reflexes were very much exaggerated, but there was no ankle clonus. There was no spitting of the saliva, and no laryngeal stridor. He swallowed solids with difficulty and the attempt to drink water brought on respiratory spasm, but milk could be swallowed somewhat better. He was quite delirious at times, talking in a rambling, querulous manner, but when his attention was attracted he answered questions fluently and well.

He was very much alarmed at the idea of hydrophobia, and frequently asked to be assured that he did not have the disease. At my request he was taken to the City Hospital for treatment. When the door was opened to take him to the ambulance he had a violent respiratory spasm, and a greater attack of shuddering. On March 13 it was found that his right pupil was more dilated than the left. The knee jerks and superficial reflexes were very much diminished. The skin on the legs and abdomen was mottled with dark marble-like patches. He had much difficulty in drinking, but was able to eat a little toast mixed with soft boiled eggs. During the night he did not sleep, but was quite noisy and delirious. In the morning he was quite excited, making frequent complaints of the conduct of the nurses during the night, claiming that they had abused him and kept his medicines away from him. In the evening his knee jerks and superficial reflexes had disappeared, but his condition was otherwise much the same. He did not sleep at all the night of the 13th, but was more quiet, lying at times in a stuporous condition. There was much hawking and spitting of frothy tenacious saliva during the night. In the morning he was much weaker, the respirations being hurried and noisy, and the skin bathed in cold perspiration. There was slight priapism, and occasional spasms of the head and neck. The skin of the legs and arms was deeply cyanotic and mottled with large dark patches. Drinking water was accompanied by much less respiratory spasm than at first, although it was still present. There were no general convulsions, but toward death there was considerable spasm of the muscles of the neck, the head being drawn further and further back. He died unconscious at 10:40 A. M.

The temperature and pulse record is as follows:



The post mortem examination revealed a slight adhesion of the dura along the border of the superior longitudinal fissure, congestion of the vessels of the arachnoid: some exudate of lymph over the left fissure of Rolando; left lateral ventricle of normal size with slight amount of fluid in the posterior horn; all vessels of all ventricles much injected, also choroid plexus, small growth, the size of a pea, attached to the floor of the third ventricle; cerebellum normal; slight adhesion at base of left lung; no fluid in either pleural cavity; hypostatic congestion of both bases; small amount of fluid in the pericardium; mitral valve thickened, aorta slightly atheromatous; trachea slightly congested, no œdema of glottis; evidence in stomach of chronic gastritis; capsule of kidney slighly adherent; hemorrhagic infarction of left kidney; spleen and liver normal.

Inoculations of an emulsion of the medulla were made in rabbits by Dr. Rothrock and Dr. Hewitt, of the State Board of Health. The rabbits under the care of Dr. Rothrock were killed by a dog on the ninth day and the experiment failed. The report of Dr. Hewitt shows that the rabbit died of probable rabies on the 11th day. His letter is appended.

May 27, 1896.

Dear Doctor:—The rabbit, No. 27, died on the 11th day—was found dead in the morning—but the day before he had been out of sorts, but no definite symptoms. Rigor mortis well marked, head drawn back, wound perfectly healed, brain congested. Death, probable rabies, though the death came earlier than expected.

Inoculated another, No. 28, from 27. It did well until the beginning of the second day, when it died, as if from pressure on the brain. Autopsy showed a bulging dura mater. Sure that the animal would live, I did not take pains to save the emulsion of 27, and so had nothing to test another with. Yours truly,

Charles N. Hewitt.

This case was interesting principally by reason of the mental condition of the patient, who was fully aware of the nature of his malady, and whose dread of his impending fate added to his sufferings. He was at times quite violent and delirious, yet, when spoken to firmly, he would always talk rationally. Inquiry as to his habits from his employer showed that, although he had been addicted to intoxicating liquors for several years, he had not been drinking for five weeks prior to his final sickness. The presence of the typical signs of rabies (respiratory spasm, insomnia, salivation, and sensitiveness to light, air and noise) was sufficient to establish the diagnosis beyond doubt. Lyssophobia also had to be considered, as the patient's knowledge of his condition suggested at first that his symptoms might be the result of his mental state, but the close correspondence between his symptoms and those which are typical of the disease, of course rendered such diagnosis impossible. It is to be regretted that the inoculation of only one set of rabbits allowed the inoculation test to fail.

Case V. On August 20, 1896, three children, Amelia Branch, aged 5, Joseph Lombardo, aged 3, and Jennie Shaffer, aged 7, were sitting on the porch when they were all attacked by a black shepherd dog, and all three were severely bitten. The dog, which was quite furious, was killed by a policeman and the body disposed of, so that no knowledge of the condition of the dog was obtained. Amelia, the most severely bitten, was taken to the City Hospital, where an examination showed an extreme laceration of the upper lip and crushing of the alveolar process of the superior maxilla, some of the front teeth being knocked out. The damage was repaired, so far as possible, and her recovery was without incident. She left the hospital August 29, in apparently perfect health.

The following details of the early part of her sickness are learned from her mother, a rather intelligent mulatto, and it will be seen how closely the observations of an untrained person correspond with the clinical aspect of the disease. She remained well until September 25, when she complained, on awakening, of a sore throat. She was listless and dull, and declined all food except a little milk, which she took from a spoon, refusing to drink from a cup. On the 26th she still complained of pain in the throat and of headache, and refused to take any liquids whatever, saying that they hurt her throat. She cried whenever fluids were brought to her and had several spells of shivering. During the previous night she had not closed her eyes. On the 27th she was much worse, with a high fever and much headache and pain in the throat. The mouth could not be opened widely, and her mother could not examine her throat. On attempting to swallow water some of it would be forced back through her nose. The pillow was constantly wet with saliva, which flowed copiously from her mouth. The sight of water produced "attacks of shivering" and many signs of repugnance, although she frequently asked for a drink. Her headache was more intense and her mental condition was one of stupidity and listlessness. She was at times delirious, and had hallucinations and illusions, apparently hearing her grandmother call her, and seeing her playmates who were not then in the room. She was wide awake all night and cried a great deal from the pain she suffered. On the 28th she was quite delirious, and in her rambling talk were frequent allusions to dogs which she said were chasing her. A draft of cold air, the touch of a cold hand, or any loud noise would produce an "attack of shivering." She refused on this day to swallow anything, and she was in much mental distress at the sight of water. During the night she was entirely without sleep. On the 29th she was very much worse. She constantly rubbed her face against the pillow or against her mother's shoulder, but there was no attempt at biting. Tenacious saliva poured constantly from her mouth. She was quite feverish and weak, and her delirium became quite violent.

Late in the evening of the 29th she was admitted to the City Hospital, in my service, and in my absence Dr. H. J. O'Brien attended her, and took the following careful notes of her condition. "When first seen she was quiet, but soon became restless, tossing from one side of the bed to the other. Her pulse was extremely rapid and weak, and practically impossible to count. She could not be kept quiet long enough to have her temperature taken. Her respiration was accelerated, and a large amount of mucus was present in the trachea. At first she would answer questions rationally, as to her name and age, but she shortly became maniacal, unconscious, and would attempt to snap and bite any one restraining her. Several times she attempted to bite the nurse, and when restrained by a bandage about her chest, she would try to bite the pillow and sheet. Convulsions occurred at intervals of fifteen or twenty minutes. Between the convulsions her eyes were wide open and bright, but because of her color (mulatto) no pupillary change could be observed. Upon coming to the hospital she called loudly for water, and when first given to her she swallowed it with much difficulty, but later she was totally unable to swallow it. The mere offer of water to her would produce convulsions and she would scream to have it taken away. Between the convulsions she talked incessantly of, and seemed fearful of, some impending punishment. She died at 2 A. M., September 30, seven and a half hours after her second admission to the hospital.

A post mortem examination was made at 11 A. M., September 30. There were upon the right upper lip and wing of the nose scars of a lacerated wound and the alveolar process of the superior maxilla was deformed from injury. Two teeth were missing. Examination of the thorax and abdominal cavity showed little abnormal, except a slight tubercular focus in the lower part of the right lung, which had apparently healed. The membranes of the brain were everywhere normal, and the vessels of the fissure of the Sylvius showed no tubercles. In the superior longitudinal sinus was an ante mortem clot. The cortex of the brain was much congested, and section showed the blood vessels to be much distended. There was no further evidence of disease. Portions of the medulla were taken for microscopical examination and inoculation experiments. There was some difference of opinion as to the nature of the disease, the examination of the brain having shown definite lesions, which did not coincide with the clinical history, and the outcome of the experimental inoculations was looked forward to with much interest.

Rabbit No. 1, inoculated October 2, died October 19, 1896. Post mortem showed an excess of sanguinolent cerebro-spinal fluid, intense congestion of cortex and substance of the brain, congestion of trachea and larynx, stomach filled with sawdust from the cage it was kept in.

Rabbit No. 2, inoculated October 3, died October 20. Same post mortem appearances as in case No. 1. The mode of death was by paralysis of hind legs, with convulsions.

Rabbits Nos. 3 and 4 inoculated from the medulla of Nos. 1 and 2 on October 19. They remained well until November 17 (28 days), when No. 3 was taken ill with loss of appetite, emaciation, weakness, a tendency to incline the head to one side, and markedly increased reflexes. The temperature was somewhat increased, but became subnormal before death, which occurred November 20. No lesions of the internal organs were found, and cultures from the heart's blood and meninges remained sterile. On opening the cranium it was found that the inoculation had been faulty, the little disk of bone under the trephine having been loosened, but not removed, so that the inoculation was practically as if it had been made under the skin, and not upon the brain surface. There was considerable effusion, the vessels of the brain were only slightly full, and there was no evidence of meningitis.

No. 4 became sick on November 23 and died on November 25, having manifested similar symptoms. The autopsy showed conditions identical with No. 3. Inoculation was made from the medulla of No. 4 upon the brain of a small dog, but a very dilute solution of the virus was used, and the hemorrhage from the trephine opening was so profuse that no results were expected or obtained.

The results of the inoculation experiments, although they were not carried out as far as I could wish, certainly confirm the clinical diagnosis of rabies. Clearly, under the circumstances of the case, no other view can be held than that the child was the victim of the bite inflicted forty-one days before.

The principal post mortem finding, thrombosis of the superior longitudinal sinus, is worthy of consideration. I can find no record of such a condition occurring in cases of rabies, although Dr. Price informs me that he discovered it in one of the rabbits inoculated by him in a case of canine rabies. It is, however, not a very surprising event in the light of the history of rabies, there being a very little fluid drunk by the patient, and a great excretion of water by means of the saliva, skin, breath and kidneys. Edes, in an article on thrombosis of the sinuses, says that it occurs in cholera and in diseases accompanied by conditions leading to inspissation of the blood. Gowers also states that clots in small vessels, formed during life, are not rarely met with.

Case VI. Joseph Lombardo, aged 3½ years, was bitten by the same dog that attacked A. B., on August 20, 1896. He was bitten over the left eye, the marks of the teeth showing in three dark blue scars, two above the eye and one below. No importance was attached to the bite, and no cauterization followed. On the death of A. B., September 29, the attention of the parents of the boy was not attracted to the condition of their son. He was playing about in the morning and apparently felt as well as usual, but in the afternoon he was flushed, listless and feverish, and complained of headache. He ate little supper and shortly afterwards vomited. During the night he slept little, waking frequently and crying from headache. During all day on the 30th he stayed in the house, most of the time in bed, in a very apathetic condition, eating little, and showing many signs of distress.

I was called to see him about 11:30 P. M. on the night of the 30th instant, and found the little fellow abed with a wide-awake expression and some congestion of the conjunctivæ. His temperature was 100.2° in the axilla and his pulse 136. There was a considerable excess of saliva, which was thick and tenacious. He complained of frontal headache, and I was told he had not yet slept that night, crying occasionally from pain.

During the day he had eaten sparingly of meat, dry bread and milk with coffee. On giving him a drink of water he had a spasm of respiration, characterized by a succession of short, catchy inspirations, culminating in a gulp with which the mouthful of water was swallowed. After the effort he lay back on the pillow and cried piteously when asked to repeat the attempt.

October 1, 9 A. M. Temperature was 101.2°, pulse 146, respiration 24. During the night he had not slept at all, crying in a whining manner at intervals. His appearance was dull and listless, paying slight attention to his surroundings, unless his attention was attracted. He complained still of frontal headache. There was marked ptosis of the right eye, as well as, at intervals, a spasmodic contraction of the upper lid, almost closing the eye and lasting for a minute at a time. There was also slight twitching of the muscles at the angle of the mouth on the right side. It was difficult to test the strength of the grasp, but there was a slight apparent weakness of the left hand. There was marked ataxia on standing, even with the eyes open, and his walk was very uncertain and staggering. The knee jerks were very much exaggerated, as were also the superficial reflexes; there was no clonus. The pupils were normal, reacting to light and accommodation, and there was no paralysis or spasm of the external muscles of the eye. The saliva was more abundant and tenacious than before. In swallowing water there was the same respiratory spasm, but slightly more pronounced, although he could swallow solid food with but little discomfort.

6 P. M. Temperature 101.3°; pulse 176; respiration 26, shallow; condition still dull and listless, the saliva flowing from his mouth as he lay on his side. The eye was bright but expressionless, and he lay in a semi-stupid condition. Twitching of the right angle of the mouth and the right eye-lid were more frequent. He now complains of occipital as well as of frontal headache. The bowels moved twice during the day. His articulation is very much impaired, and it is with difficulty that he can be understood by his parents, the voice being hoarse and nasal. He has much loss of strength. Pupils equal and reacting normally. Swallowing the same as in the morning. During the day he ate nothing but a soft boiled egg. Knee jerks much increased.

October 2, 8 A. M. Temperature 101.3°; pulse 156; respiration 26. The parents report that he did not close his eyes all night, and had two convulsions, the nature of which could not be quite made out. The bowels moved three times during the night. In appearance he was very stupid, speaking inarticulately when spoken to, and occasionally crying as if in pain. When offered water he cried and refused to take it, but when forced he shuddered and drank a few drops with much respiratory spasm. The knee jerks and superficial reflexes were entirely lost, and there was a tendency to rigidity of the feet in a condition of extreme extension. The pupils and eye movements were unchanged.

12 M. Temperature 101°; pulse 144; respiration 32. His condition was practically unchanged with the exception of somewhat more pronounced spasm and ptosis of the right eye-lid. He had a general convulsion about 11 A. M., slight in character. His strength had greatly failed, and his ataxia was pronounced. The saliva was very abundant and stringy, and being swallowed with difficulty, it rendered his respiration noisy by collecting in the pharynx. Examination of the throat showed nothing beyond a dusky redness of the pillars of the pharynx and the pharyngeal mucous membrane. There was still marked respiratory spasm when liquids were offered, though he seemed to have slightly less difficulty in the act of deglutition. The urine, which was high-colored and scanty, gave a specific gravity of 1032 with no sugar or albumen.

11 P. M. Temperature 102.2°; pulse 156; respiration 39. Patient was quite delirious since early in the evening, tossing about, talking inarticulately, and crying at intervals. He would lapse apparently into a condition of stupor, arousing with a start and kicking and striking as if to defend himself from some imaginary attack. He fought everyone who approached the bed, and was apparently suffering from some distressing delusions. The contraction of the facial muscles had now become so marked as to produce the appearance of smiling, the nurse's report showing that "he smiled and looked happy." He had six convulsions during the afternoon, in which he would roll his eyes upward, protrude his tongue between the teeth, turn back his head and slightly arch the back, followed by clonic movements of the legs. Blowing upon the hand or face would produce a respiratory spasm, and passing a light before the eyes would also cause it. Ptosis was now present in both eyes; more, however, in the right than in the left. The saliva now had become somewhat frothy, and flowed copiously from the lips. Articulation was impossible.

October 3, 8 A. M. Temperature 102.5°; pulse 178; respiration 42. During the night he had sixteen slight convulsions, mostly involving the legs and head. He was semi-conscious, moaning inarticulately, with shallow and irregular respirations. Swallowing was not so difficult, although the respiratory spasm was produced by a draft of air or a loud noise.

The bowels had moved twice during the night, and he passed ℥iii of a high colored urine. Up to the early hours of the morning he rambled and talked a great deal, but could not be understood, and fought at intervals with his imaginary enemies. He perspired freely at 5 A. M., and his pulse became almost imperceptible for a time, but he shortly rallied. He ate, under protest, two spoonsful of soft boiled egg, swallowing it with little difficulty. Toward noon he was unconscious most of the time, with considerable cyanosis. His breathing was shallow and noisy, embarrassed by the accumulation of saliva and mucus. In the early afternoon his head was frequently drawn backward and turned from side to side, and his legs were frequently moved in clonic spasm. He died at 4:20 P. M. The appearance after death was that of asphyxia, the lips, tongue and pharynx being deeply congested. Half an hour after death the rectal temperature was 105.2°.

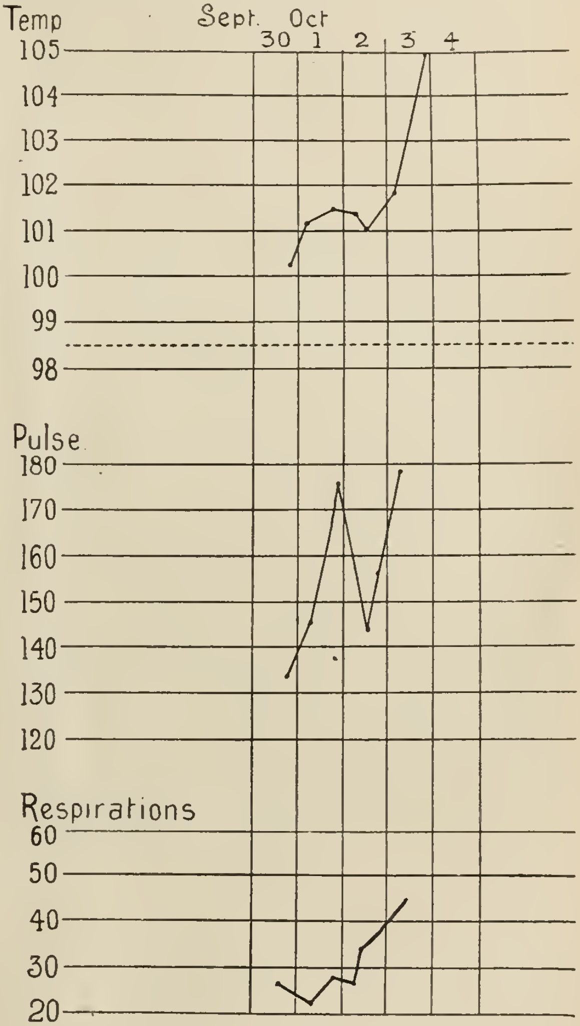


Chart of Joseph Lombardo, Case No. 6.

During the course of his illness he was given fifteen grains of bromide of potassium, every two or three hours for the first two days, with a little of the infusion of digitalis when the condition of the heart seemed to indicate it toward the close. The bowels were relieved by calomel, and thirst allayed by rectal injections of an ounce of water every three hours. His diet consisted of bread and crackers moistened with water, rare beefsteak, from which the juice was sucked, and soft boiled eggs. It was extremely difficult to get him to eat anything, and the endeavor to make him drink was the signal for rebellion and distress on the part of the little patient. No post mortem examination was permitted.

Jennie Shaffer, the third of the children bitten, was sent to the Pasteur Institute, at Chicago, on the death of the Lombardo boy, and received protective inoculation. She has remained well to the present time. Her wound being on the arm, the period of incubation was such as to give ample time for treatment.

The character of the disease, when seen at the bedside, is apt to be misleading to those whose minds have previously been prepared by the exaggerated picture of the disease which, from time to time, appears in the daily papers. The fury, biting and dreadful character of the convulsion therein described, are but rarely seen, and then only in those cases in which the patient has a knowledge of the nature of the disease, and is overcome by the dread of his impending fate. In only one of my six cases was the real nature of the disease known, and in that patient the delirium was of more maniacal form than in the others. The analysis of the cases shows that there should be no real difficulty in the diagnosis if the exaggerated picture of the disease is not sought for.

The spasm of respiration on drinking is quite characteristic and is met with in no other nervous disease. The patient, on taking the liquid to be drunk, has a series of short, catchy respirations very much like those we experience when suddenly douched with cold water. They are not, as a rule, accompanied with convulsions, and in the beginning of the disease the spasm may be entirely overlooked unless sought for. The pain in the wound, radiating up the arm, may easily be mistaken for rheumatism or neuritis, and in one of my cases this opinion was entertained until the onset of more severe symptoms. The salivary secretion is very abundant and tenacious, even in the early stages of the disease, flowing from the mouth when the patient is lying down, and with the onset of delirium being violently ejected on the floor, walls and bedclothing. The pulse, from the first, is full and bounding, and retains this characteristic till near the close. The temperature is not excessive, none of my cases showing higher than 103° except near the close. The delirium varies in character with the age and temperament of the patient.

Case No. 2 was wildly hilarious and excited; No. 3 was mild in type and full of vague delusions of persecution; No. 4 was quite maniacal, with at times an hysterical tendency. In Nos. 5 and 6, being children, the delirium was such as is seen in other febrile diseases. One symptom, constant in all my cases, and fully as characteristic as the spasm of respiration, was the insomnia. This is not of the ordinary type, but consists of wide open eyes all night. Sleep was entirely absent, although on the supervention of stupor a condition resembling sleep is sometimes present for a few minutes at a time, but when the attention of the patient is aroused it is evident that he has not been asleep. The eye is, as a rule, bright and staring, and for hours the patient will gaze into vacancy without apparent consciousness, unless aroused by questions or the offer of food.

While individual symptoms may be for a time misleading, a careful study of the symptom complex leads to only one diagnosis. In no other recognized condition do we have the peculiar "catchy" breathing, the persistent insomnia, the enormously increased salivation, the laryngeal reflex at the sight of fluids, from a bright light, or from blowing upon the skin of the patient, the moderate temperature, with greatly increased pulse rate and death in such a fixed period as this malady.

The only disease from which it must be seriously differentiated is tetanus. In the latter we may have more or less difficulty in swallowing, sometimes a prominent feature of the disease, and an incubation period which, though usually limited to three weeks, in rare and doubtful cases has been reported to have lasted two or three months, and pain in the wound; but in rabies there are absent the peculiar characteristics of tetanus, viz: trismus, tonic spasm, epigastric pain, sweating, the tonic spasm of the muscles of the mouth, the high range of fever, the restlessness, and in general those features of the disease which are the most characteristic. Moreover, the peculiar nature of the wound in tetanus is in itself generally sufficient to distinguish it from rabies.

The diagnosis of the true from the false rabies is not difficult. In the latter there is the excessive dread of the disease, which terminates in an hysterical outburst of terror with the occurrence of false spasm of the throat (globus hystericus) and convulsions of an hysterical type. The true "catchy breathing" is absent, the salivary secretion is not increased, and the temperature is usually normal.

The cases of death from the spurious rabies should be received with suspicion, although, of course, a violent mental impression has been known to prove fatal. Gowers says that "there has more often been a tendency to regard the genuine disease as imaginary than to mistake the spurious for the genuine. This tendency is especially marked among critics who have not seen the case, who do not scruple to cast doubt on the nature of even fatal cases." It is not certain that death has ever occurred from mere "lyssophobia." Mistakes are often made by wrongly construing as imaginary and unfounded the anxiety and dread of the disease, which is a prominent feature of the genuine malady. In case No. 4 the fact that the patient had, prior to his sickness, heard of the death of a person from rabies, with a full description of the symptoms, led to error on the part of some who saw him and declared that, in their opinion, it was a case of lyssophobia. The confirmation of the diagnosis of true rabies by inoculation of rabbits should remove skepticism as to the diagnosis.

The clinical symptoms of rabies alone are sufficient for diagnosis. The picture of the disease is definite. A correct diagnosis from clinical symptoms is of great importance, for it may be the means of saving other lives. It is not wise to await the result of inoculation experiments; for, after one of the victims has succumbed, it is certain that the period of incubation for the others is drawing to a close, and the opportunity for antirabic inoculation is likely to be lost. Moreover, the inoculation test is quite likely to be valueless unless skillfully conducted. In three of my cases but one rabbit was inoculated in each case. The first died from meningitis on the secand day, and the experiment failed. A second died of rabies, but subsequent inoculation failed to produce results. In a third, after the rabbit had died of rabies, the reinoculation failed by the death of the rabbit from meningitis, and the experiment terminated. In case No. 4 two rabbits inoculated throve until the ninth day, when a dog obtained access to the cage and killed them. From my experience it will be seen that many chances of error surround the inoculation experiment, and that if the diagnosis is to rest alone on that test, we may be frustrated in the attempt.

I believe that the clinical symptoms alone, if intelligently and carefully observed, are amply sufficient for diagnostic purposes, and that where the lives of others are in jeopardy such diagnosis is entirely justified.

A BREACH OF PROMISE CASE AGAINST A SURGEON. The following action-at-law recently brought in England is interesting from the nature of the defence, which in this country would be looked upon as unusual, although it seems to strike the editor of the *Indian Lancet*, from which the paragraph is taken, as eminently proper under the circumstances: In the Queen's Bench Division last week, Mr. Justice Hawkins and a special jury heard a suit for breach of promise brought by a nurse against a surgeon. The defence was that the promise was made on the strength of representations made by the plaintiff as to her social position, to wit, that she was the daughter of an Australian gentleman of independent means, that her brother was an engineer, and that she had taken to nursing simply for the sake of occupation. However, the facts, as stated in the pleadings, were that the father was verger in a church, that her brother was an artisan, and that she had become a nurse in order to make a livelihood. These statements appear to have been borne out by evidence. They offer good instances of prevarication suggested purely by literary treatment. Of course it is strictly true to say that one's father is connected with the Church of England, even if he be no more than the parish gravedigger. But the jury, guided by legal considerations, decided that the defendant was not exonerated from his promise, and awarded the nurse £300 damages. If the facts alleged by the defence be true, then the doctor has probably acted wisely by throwing up a bad bargain, and may regard his money as well spent. Nothing can be more disastrous to the career of a medical man than an ill-assorted union with a woman beneath his own social rank. Unhappy object lessons of the kind will be only too familiar to most of our readers.

SCIENTIFIC ASPECTS OF THE RECENT GLOVE FIGHT. That distinguished exponent of the manly art of self-defence, Mr. Robert Fitzsimmons, would hardly feel complimented were he to read the remarks of the *Medical Press and Circular* upon the character of the blow by which he recently won the heavy-weight championship. "The deciding buffet," says our contemporary, "was evidently one administered over the celiac plexus, called a blow on the heart, really on the stomach. The referee described it as 'an underarm punch,' just below, and slightly to the right of the heart, which is, being interpreted, the pit of the stomach. By the laws of the ring, the blow is a fair one. By the rules of common humanity, however, it is a cowardly outrage little short of a deliberate attempt at assassination. The fatal nature of a severe blow to the network of visceral nerves, known as the celiac plexus, makes such 'punches' as those which finished Corbett among the most deadly that can be inflicted with the fist. By the way, what have the anti-vivisectionists to say to this brutality inflicted by man upon man?" *Boston Medical and Surgical Journal.*

DERMATITIS FROM THE X-RAYS. At a meeting of the Section of Medicine of the Paris Academy of Science, on June 14, last, Prof. D. Arsonval presented in the name of Dr. G. Apostoli a case of severe and intractable dermatitis following exposure to the X-Rays. The subject exhibited a very large slough upon the abdominal wall following two sittings under the Crooks tube, one lasting forty minutes with the tube held six inches from the skin, and the other lasting ninety minutes with the tube about three and one-half inches from the skin. The immediate effect of exposure to the rays was some nausea without vomiting, followed two days later by an erethema, vesicles pustules and finally the slough which measured about seven by five inches.

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THE MEETING OF THE MINNESOTA STATE MEDICAL SOCIETY.

The twenty-ninth annual meeting of the State Medical Society was an experiment in that it was the first meeting for thirteen years held outside of the cities Minneapolis, St. Paul and Duluth. It must, however, be conceded that it was a most successful experiment, for not only was there an excellent attendance, but the number and quality of the papers contributed was well up to the highest mark set by any previous meeting. Indeed, one of the most gratifying features of the meetings of the State Society is the progressive and steady improvement in the character of the papers and discussions.

A radical change in the management of the scientific work of the Society will be brought about by the action of the meeting in abolishing the Committee of Censors of Papers, leaving it to the chairmen of sections to accept or reject contributions offered. This is the plan under which the Society worked previous to the year 1892, when the Constitution and By-Laws were changed so as to provide for the Committee of Censors of Papers. To make the change back again and abolish this Committee and its functions required unanimous consent; yet this was obtained, and the resolutions providing for these important changes went through without opposition, and almost without discussion. This was rather a summary way of dealing with an important provision of the Constitution of the Society, and it was a pity there was not at least one dissentient voice to cause the matter to go over another year, so that the action might be taken deliberately and with a full knowledge of all the facts.

The great objection to leaving the censorship of papers in the hands of the chairmen was that they never used their power of discriminating between good and bad, but accepted everything that came into their hands. The reasons for this are not far to seek. For the chairman of a section to refuse a paper which he has perhaps solicited would be a very disagreeable duty, one that he would find an excuse for shirking if he possibly could, and such excuses are easily found. Again, every chairman is ambitious to make his part of the proceedings as large as possible, and is disposed to hold on to all the contributions that are made to him. The advantage of a committee of censors was that the odium of rejecting papers lost its personal character when thrown upon a committee and as a result some weeding out was to be expected; as a matter of fact more or less papers have been rejected by the Committee each year, and if some of those that have been refused could have been read to the Society, to show the kind of stuff from which the Society has been protected, the vote upon the abolition of the censors might have resulted differently. As it is, the most to be hoped for is that the chairmen of sections of the future will be made of sterner stuff than the chairmen of the past, and that there will be a judicious culling of the contributions in the coming years.

The resolution providing for the immediate publication of the Transactions in book form so that the volume may be in the hands of the members within sixty days of the close of the session, will, of course, allow the publication of but few of the papers in the LANCET, even if the publisher of the LANCET should be the successful bidder for the publication. The impression seemed to prevail in the Society that too high a price had been paid for publication during the seven years that the papers have appeared first in the LANCET and then in book form. That this is an error, and that the publication in the LANCET has been a considerable saving to the Society may be seen by comparing the cost of publication in 1889, the year before the LANCET took the contract, with the cost last year. In 1889 the price paid, including postage, was $428.16; in 1896 the cost, including postage, was $354. Moreover, the Transactions for 1896 contained almost exactly twice as much matter as that of 1889, and one hundred more copies were printed last year than were required eight years ago because of the growth in membership of the Society. From these figures it is difficult to see where a saving can be made by going back to the old method of publication, unless by machine typesetting, pasteboard covers and generally cheap work, the cost can be screwed down, with the result of issuing a volume that will give little credit to the Society or satisfaction to its members.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. BEARD, M. D., SECRETARY.

STATED MEETING, WEDNESDAY, MAY 5, 1897, at the West Hotel, Minneapolis. The President, Dr. W. A. JONES, in the chair.

The Academy adopted the following resolutions in memory of the late Dr. PERRY H. MILLARD:

In the death of Dr. PERRY H. MILLARD the Academy sustains a severe loss, and the profession of medicine throughout the State of Minnesota experiences an especial affliction. While it is true that no man in any sphere of life is indispensable, yet there are some, who, during their lives, have so impressed upon their calling the vigor and energy of their personality, that their death leaves a distinct sense of void. In such a sense the death of Dr. MILLARD is a public loss. His private virtues only those who knew him well had occasion to learn, for he was reserved and disinclined to form intimate friendships. His public services, however, have left upon the profession of Minnesota an imprint that time will never efface. He was a man of strong personality, endowed to an unusual degree with a capacity for hard work, possessed of energy, clear judgment and foresight, and especially gifted with an immovable resolution. His services in his various public relations show his strength of mind, his appreciation of the future necessities of his profession, his consciousness of the inevitable advancement of his chosen science, and his capacity to sway the minds of legislators and educational bodies to the furtherance of public good.

His connection with medical legislation resulted in the passage of our present Medical Practice Act, and in compelling the medical schools of the country to raise their requirements of admission and graduation. As a member of the State Board of Health, his voice was influential in adapting the primitive facilities of the Board to the large and increasing needs of a growing community. As Dean of the Medical Department of the State University, he strove with untiring zeal and success to place his college among the first in the land in point of excellence and reputation. As secretary of the Medical College Association, his voice was always raised in behalf of the elevation of the standard of medical education.

He was essentially a public man and devoted himself unselfishly and zealously in furthering, in every way, the good of the profession. As such he was, in a sense, unique among his fellows in a time when private concerns absorb the attention of us all. His life and his peculiar gifts form a pattern from which we all might copy with benefit to ourselves and to the community. He was, in addition to the qualities with which nature had so lavishly endowed him, possessed of scientific intelligence of high order, a relentless energy, a perfect comprehension of detail, a masterly grasp of the future necessities of his profession, and an enthusiasm in his work that is rarely met with.

His life work was an earnest endeavor to place the science he had devoted himself to in the hands of the educated and skillful. His ideal was a worthy one; his work is of a permanent character, and while we all may not rival him in his brilliant powers and his noble use of them, we can find them an inspiration for better and more useful lives, and honor and cherish his memory as a good physician and a public benefactor.

JNO. F. FULTON,
B. J. MERRILL,
JNO. T. ROGERS,
Committee.

Dr. F. A. DUNSMOOR, of Minneapolis, reported a case of

PARTIAL DOUBLE VAGINA AND DOUBLE UTERUS.

The right cavity had been the seat of impregnation and the cervix upon the one side had suffered a laceration. He also reported a case of operation for gastro-enterostomy undertaken for relief of carcinoma of the pylorus. Some infection of the mesenteric glands was discovered. The Murphy button was used and Jacobson's method of attaching the bowel to the anterior portion of the greater curvature of the stomach, was followed.

Dr. ARTHUR SWEENEY, of St. Paul, read a paper upon

RABIES.

See page 247.

The discussion upon the subject was opened by Dr. F. F. WESBROOK of the State University. He said that his connection with the cases reported by Dr. SWEENEY was only an indirect one and that he could only treat the subject from an educational point of view. In the development of the material sent to him by Dr. SWEENEY he had collaborated with Dr. ROTHROCK, of St. Paul, with identical results. In one case a virus which had been exposed for some time and had become dried, failed to produce characteristic results when injected subdurally in two rabbits, which, after inoculation with fresh material, succumbed rapidly to the disease. Pasteur had found that dried virus did not kill but immunized the animal. In these cases it did neither. Some of the series were not fully developed for want of a sufficient number of fresh rabbits, some seventy-five of which had been inoculated in his laboratory during the past few months. In those series developed characteristic, although variable symptoms appeared. It was found that the temperature in rabbit rabies is low as compared with that shown in man.

Under the head of treatment, it must be said that protective inoculation had proved a success. There had been a mortality of only 0.6 to 0.7 per cent. of inoculated cases. There was good ground for the belief that rabies is a disease. In rabbits, the period after inoculation, running from seventeen to twenty-four days before death ensued, was too long to encourage either the idea that death was due to the operation or the belief that it was due to the action of ordinary microörganisms. In one case, a rabid dog's brain, which had been frozen, was utilized and produced typical results.

Dr. J. L. ROTHROCK, of St. Paul, said that he wished to make one comment upon the case of Amelia Brandt reported. The post mortem examination discovered a thrombus in the superior longitudinal sinus which was a possible cause of death. Of a series of four rabbits, inoculated from this case, one had died from hemorrhage, one from staphylococcus meningitis, and the other two had been taken sick and had died soon after the operation.

A second series of two rabbits, inoculated from this same case, recovered completely from the operation and on the twenty-seventh and twenty-eight days thereafter respectively, they developed characteristic symptoms of rabies and died within a short time of each other. No lesions were found in these animals. The body fluids were sterile. A further inoculation made with much diluted virus from this second series, was unsuccessful. The experiments had not been carried so far in these cases as could have been desired.

Dr. W. COURTNEY, of Brainerd, presented in synoptical form, his thesis upon

THE YEAST NUCLEINIC ACID TREATMENT OF SEPTICÆMIA.

Dr. A. W. ABBOTT asked what preparation of the nuclein Dr. COURTNEY had used and as to the extent of the dilution.

Dr. J. H. DUNN inquired the meaning of the term "reaction" as Dr. COURTNEY had employed it.

Dr. W. A. JONES asked if the agent produced any marked physical depression.

Dr. COURTNEY, replying, said that he had used Parke, Davis & Co's. preparation and a solution of five per cent. diluted, because he had found solutions of this strength more stable than weaker ones. By the term reaction, he meant a local inflammation at the point of injection, accompanied by a rise of temperature. So far from the agent causing depression he had found depression markedly relieved by it.

MISCELLANY.

THE INTER-COUNTY MEDICAL SOCIETY.

The Mid-Summer meeting of this Society will be held at Ashland, Wisconsin, on July 13, 1897. A number of interesting papers are promised, among others one relating cases of the application of the Roentgen rays to medicine and surgery, with practical demonstrations of the apparatus. All are invited to attend the meeting whether members of the Society or not.

NOTES.

MELACHOL, PHASELIN AND RHEUMAGON, THREE RECENT ADDITIONS TO THE MATERIA MEDICA ADAPTED TO THE PATHOLOGICAL FAULTS OF THE SYSTEM, AND TO AIDING NATURE IN MAINTAINING NORMAL FUNCTIONS OF THE ORGANISM.

MELACHOL.

Chemistry: Described as "a reduced chemical combination of phosphates with nitrates of sodium."

Antagonists: Belladonna, stramonium and hyoscyamus antagonize the action of melachol. Alcoholic beverages, malt liquors and the metallic salts limit the action.

Physiological action: Melachol is readily borne by the stomach. When the stomach is irritable, or the intestines inflamed, it is not rejected, but, instead, corrects the morbid condition. The conditions under which it acts on the intestines are altogether normal. There is a decided secretion from the intestinal glands and an acceleration of peristalsis. The extent to which the secretions is augmented is, however, very moderate. There are no unpleasant after effects. In addition to being a mild laxative it is a local sedative and anodyne, relieving any pain or uneasy feelings by acting anæsthetically on the gastric nerves. In addition, diffusing into the blood, it carries the same effect to the nerve centres. Sensation and motive power are not modified by it. It reduces the capillary circulation and gives rise to a slight increase of the temperature.

Problem: Is there any action on the excitability of the striated muscles? There may be, but apparently there is none. At any rate it does not modifiy their structure. A second query is as to administering the remedy to children. Is it perfectly safe and advisable? It is. The proper dosage is given on the bottle.

Therapy: Absolute confidence may be placed in melachol all along the physiological lines. It is very effective in pyrosis, gastric catarrh and irritative dyspepsia. For the vomiting of pregnancy it is, perhaps, the most reliable of remedies. The same applies to the vomiting attendant on the exanthemata, and to that which arises from irritation of the mucous membrane of the stomach by indigestible food. As a laxative for pregnant women, children and the invalid or debilitated, no laxative in the materia medica is deserving of greater esteem. . Impaction of the cæcum, typhlitic and allied disorders, respond to no treatment more satisfactorily. In dropsy—renal, cardiac or portal—melachol is conspicuously beneficial. Cholæmia, uræmia, œdema of the brain or any intra-cranial blood pressure, are conditions requiring the use of melachol. For catarrh of the biliary ducts the readiest relief is given, although there is no true hepatic action. While treating conjunctivitis with applications of phaselin it is advisable to exhibit melachol in large doses.

PHASELIN.

Preparation: Tablets.

Derivation: Phaseolus Mexicanum, seu Egyptinnicum.

Botanical details: Genus Phaseolus is allied to the Genera Dolichos, Faba, Soja and Cajanus Leguminous.

Medicinal portion: The bean. The peculiar virtues are also contained in the leaves, but in a lesser degree.

Chemistry: Phaselin is the active principle, or possibly one of two, there being reason for suspecting another principle. Phaselin is a saponifiable oil, associated with resinous matter. It is entirely distinct from legumin, which is the active principle of faba vulgaris; but like it, it constitutes about 24 per cent. of the bean.

Physiological action: 1. It is remarkably nutritious. 2. It is readily digestible. 3. It possesses the property of converting the nitrogenous constituents of food into peptones. 4. It promotes appetite, causing a free flow of saliva, gastric juice and intestinal juices. 5. It is a stomach tonic. 6. It relieves the morbid state of the mucous membrane of the entire alimentary tract. 7. It has a sedative action on the gastric nerves. 8. In its local action it promotes healing, prevents putrefaction and arrests fermentation.

Composition: Phaselin is to be considered as the active principle in medical form.

Therapy: For the promotion of the organic functions and for healing properties it is of distinctive value. For atonic dyspepsia and gastralgia it is remarkably effective. In the chronic gastric catarrh of drunkards it heals the mucous surface, aids the feeble digestion, increases the appetite, and relieves the nervous symptoms. In atonic diarrhœa, where there is a paretic condition of the muscular layer of the bowel, it speedily cures. For nursing mothers it is a food. For all forms of gastric uneasiness and pain it is never disappointing. Simple ulcers, wounds, fistulas, burns, etc., find in the powdered phaselin, dusted over the diseased surface, an excellent application, antiseptic, anodyne and changing the morbid action. Even where the lymphatic glands are involved, and in rodent ulcers, it is signally beneficial. The same may be said of its use for skin diseases. Used in the form of ungent or poultice it is very grateful. In all inflammations of the conjunctiva, whether acute or chronic, and especially where granulations occur, it is of excellent value. For follicular pharyngitis and in ulcerations of the pharynx, larynx and trachea, treatment by insufflation is attended by pleasing results. The remedy may also be employed as a gargle. A glycerite may be prepared that is of almost magical value for the chronic otorrhœa of children. The glycerite is of value for vulvitis and hemorrhoids.

RHEUMAGON.

Composition: The sodium phosphates and iodides in combination.

Synergy: The two salts materially assist each other's action.

Physiological action: The action of the heart is depressed, the blood pressure and temperature lowered, and the body weight and forces of the organism diminished. It increases the flow of the saliva, and, when given on an empty stomach, that of the gastric juice. There is an apt diffusion into the blood. There, with the simultaneous presence of oxygen, oxidation of the organic constituents of the blood is accomplished. This process, however, is quite slow and gradual. Elimination is chiefly by the kidneys, the quantity of urine being increased, and with it that of the urea, uric acid and extractive matters. In some subjects there is a slight irritation of the broncho-pulmonary mucous membrane.

Query: Will emaciation occur if rheumagon is administered for a lengthy period? It will; but there is no danger of any such result, as the remedy acts rapidly and it is not necessary to protract its use.

Therapy: The utility of rheumagon is conspicuous in the treatment of constitutional syphilis. It is to be accounted remarkable that it is as applicable in one stage as in another. Equally of value for the tertiary symptoms, the secondary affections of the skin, and the squamous, papular and tuberculous syphilides, it is quite as applicable in paraplegia and allied neuralgia of syphilitic action. In short, the syphilitic virus is eliminated from the system. Rheumagon, especially where there is present a thickening of the fibrous tissues and inflammatory deposits about joints, tendons and nerve trunks, is very signally benefited by rheumagon. It is no exaggeration to denominate it specific. In the hyperpyrexia of the acute disorder there is no remedy more efficacious. It relieves, shortens the duration and diminishes the swelling. Rheumagon is effective in the treatment of hay fever and spasmodic asthma. It is most beneficial when the seizures are induced by an acute bronchial catarrh with profuse secretion. In the treatment of strumous enlargement of the cervical, inguinal and mesenteric glands, it is of a high degree of utility.

W. H. Morse, M. D., F. B., S. Sc.,
Westfield, N. J.
International Journal of Surgery, June, 1897.

Dr. A. B. Stork, Alta, Ia.: I have found best results from the use of Sander & Sons' Eucalyptol in all stages of catarrh, la grippe not excepted, and have used it as a spray in the following combination:

R Liquid Vaseline...........	1 ounce
Ol. Euc..................	20 drops
Ac. Carbol...............	1 to 2 grains

I have used it combined with bichlor. of mercury two grains, to aqua four ounces, eucalyptol twenty drops, for washing genitals of parturient women; also washing vagina after confinement, when the secretion becomes offensive, and disinfect my hands with a stronger solution of the above before attending women in labor, and, I believe, with the best results. I use same combination, only much stronger, in disinfecting rooms occupied by patients affected with infectious diseases, with large spray apparatus, and as health officer of the place can vouch for its reliability. I also use it in sepsis as follows:

R Eucalyptol....................	½ ounce
Syrup Simplex................	1½ ounces
Aqua.........................	2 ounces

One teaspoonful every one or two hours.

A VALUABLE HYPNOTIC IN PNEUMONIA.

The necessity of overcoming the insomnia attending certain cases of pneumonia, ought to be evident to every physician. Probably nothing known to the profession can alleviate the distressing symptom of sleeplessness so satisfactorily and with so few after effects as Bromidia. By the use of this reliable preparation we can obviate the effects of losing sleep and at the same time feel that the heart's action is unimpaired, a dire calamity in a pneumonic process.—*Vermont Med. Monthly.*

February, 1897.

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LECTURES AND ADDRESSES.

THE HERITAGE OF MEDICAL SCIENCE.

An Address Delivered before the Medical Graduates of Hamline University, Commencement Day, June 10, 1897.

By David Owen Thomas, M. D., M., R. C. S.

Professor of Dermatology and Genito-Urinary Diseases.

Mr. President, Members of the Graduating Class, Ladies and Gentlemen:

It is said that the carrier pigeon makes two or three preliminary circuits before entering his direct course; in like manner a preliminary survey may enable me to get my bearing, and prove the most direct route to the central purpose of this address, nominally to the graduates. The scope of such an address is not easily determined. Certainly it is not intended to embody some special instruction, or professional secret which could not be explained in a four years course. Furthermore, as I have not been commissioned by the faculty to subject the class to any preliminary preparation, nor have been instructed to make any incisions or sever any ties, I conclude that my performance is not an operation. However, there was an operation this afternoon,* a major operation, performed painlessly, without anæsthesia, in President Bridgeman's brilliant style. Like a master surgeon he performed the operation and conferred the honor of the after treatment on us his assistants, therefore like a chief-of-clinic I have followed the patient rather than the ambulance to do the final dressing here and now. Any little perfume of antiseptics which my dressing will unavoidably convey will be fully counterbalanced by the satisfaction and security which the word "recovery" will add to the statistics. Who said that recoveries are not reported? Then when my dressing is applied layer by layer, and finally unwound turn by turn I have the honor to pronounce the patient discharged, and to make the discharge not a dismissal but an introduction.

To abandon metaphor, I have the honor in behalf of the medical faculty of Hamline University to congratulate the class on their success and distinguished attainments, and make this first recognition of their title as doctors, and professional standing as physicians. At the same time I am to commemorate the comradeship and nearness which has existed between professors and students, and transform the friendship into a fellowship by the hearty welcome we extend to them as doctors to ascend the common platform on which we stand and enjoy the honors and duties of our esteemed profession.

As speaker on this occasion my duties are manifold. I am to convey not only the greeting of the college and university but also to make my words serve as the introduction of the graduating class to a confiding public and thus say for them what they have not been accustomed to say for themselves, that is that they are now ready for work and at your service. This is naturally followed by a side view of the heritage of medical science—the lofty summit to which they have attained, as an endorsement of their skill and attainments, that you may feel secure and fully persuaded that a medical diploma is no longer a license to take life easy! Medical culture is now so thorough that physicians are no longer hatched so rapidly and imperfectly that a part of the medical egg-shell adheres to them through life.

While acting in the capacity of a commencement speaker I might wish enough of that mental strabismus that would enable me to direct one eye on the profession while the other is fixed on the public, so that the one might see the majesty of medicine as a science, and the other the travesty of practice as a placebo. Such a medical speaker is somewhat like the minstrel at the feast, for his pliant chords must vibrate the deeds of the centuries, and he must sing of heroes brave and victories won, and also point to conquests still to come, and thus blend fact and fable with such exquisite harmony that the timbre of his voice should fully conceal the bark of his performance.

This graduating class by long and faithful labor inherits the accumulated experience of the centuries. That you may see how the secrets of medicine have become the science of medicine, I propose to trace for you the growth of medical culture, and demonstrate that all true progress has been the result of observation, and that all medical discoveries have originated within our profession.

Herbert Spencer in the *Contemporary Review* of June, 1895, claimed that medicine originated in superstition and that the physician is an outgrowth of the heathen priest who believed in incantations. This view contradicts the earliest records which indicate that medicine began by observation and not by superstition. The oldest medical document found lately at Kahun in Egypt, written about 3000 B. C., proves that many prescriptions consisted of articles of food. Maspero suggests that castor oil was taken as food in the time of the Pharaohs, but like other medical plants was finally set aside as medicine.

Animals possess a certain instinct to select the kind of food and medicine which their physical condition demands. It is no uncommon thing to see a dog when threatened with some fashionable ailment, such as appendicitis, due to his sedentary life, or some over-indulgence at a banquet, or some dissipation at a late hour with the boys, take his case in his own hands, and turn the field or roadside into his apothecary shop, and prescribe a few blades of green grass for himself. In a few days the pain at McBurney's point leaves him, his appetite returns, and when Saturday night comes a little business with a friend calls him to his canine club, where he receives greetings from his companions and in return recommends his botanical formula to all the Towsers in attendance. May we not suppose that primitive man likewise had a certain instinct in the selection of his food and medicine, and that when he experienced that some herbs increased certain secretions his untutored mind would so employ them in disease.

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*The degrees were conferred at Hamline in the afternoon, the address was delivered at Minneapolis in the evening.

It is surprising how many of the earliest practices of antiquity are still in repute on American soil today; for instance, we disinfect our rooms with burning sulphur as did the Greeks before the days of Homer. Hippocrates was quite familiar with opium and emetics, and "aloes is employed now just as it was before the days of Dioscoredes and Pliny." We still use rhubarb in medicine as did the Arabians, and the male-fern is still as much of a specific for tape worm as it was amongst the Greeks and Romans. Castor oil is as non-compromising and hard-hearted as it was in the house of Pharaoh, and in the tents of the natives of the East and West Indies before its introduction into Europe. Mercurial inunctions were used as they are now as far back as the days of the Crusades, and can be traced, it is said, in Malabar as far back as the ninth century. We employ ergot just as did the peasants of Germany originally, and podophyllum is used just as it was when discovered by the North American Indians. It is said that the ancient writings of China contain a limited medical literature, and the Vedas of India allude to a crude medical art, but being confined to medicine giving empirically without any clinical observation or intelligent explanation India and China have contributed nothing to our medical knowledge. But the Egyptians showed so much progressive culture that in the time of Herodotus certain specialties in medicine were cultivated. The Greeks borrowed both their medical science and art from the Egyptians, for the Greek students attended Egyptians schools.

The attempt to understand the structure of the body was the first step towards medical progress. The first treatise on anatomy is found in the works of Hippocrates who was born 460 B. C., who was therefore a contemporary of Socrates and thus lived in the brilliant age of Pericles. Hippocrates pursued his study of anatomy in Egypt by dissecting apes and swine, animals which he regarded most similar to man. In the history of the ancient world the human body was not dissected except for a short period under the Ptolemies in Egypt. The anatomists living at that time in Alexandria have left their names inscribed on human anatomy and remain in our text-books to this day.

After the downfall of Alexander's kingdom, Rome become the centre of the civilized world, and we find Greek physicians the first in prominence,and amongst them Galen, a Greek born at Pergamos 130 A. D. Galen also had been a great dissector of apes. He made transverse sections of the spinal cord, discovered the motor and sensory function of the spinal nerves and thus located spinal paralysis as we do. He was the first to discover the function of the kidneys and to describe the escape of their secretion by the ureters. He remained the authority in medicine for over 1500 years or until Italy and Spain were rejuvenated by the new learning under the Arabs, when students from all parts of Europe traveled to the universities of Salerno, Pisa, Padua and Bologna.

The Arabs themselves discovered nothing by their alchemy, but their philosophy brought about the first attempt at analysis, and devised different methods of extraction and distillation which led to the foundation of modern chemistry and the discovery of oxygen by Priestly.

When the *renaissance* pervaded the Italian universities it reacted in a remarkable manner on all branches of knowledge. The revival of art under Ariosto, Raphael and DaVinci was earlier and more rapidly sublime than that of medicine. Within a hundred years the scientific principle was applied to medical studies and owing to the mulititude of students visiting Italy, Mondini in Bologna was permitted to dissect the human body. When once permission was granted, dissecting became general, and Vesalius established the foundation of modern anatomy, and by his anatomical discoveries destroyed the belief in Galen's infallibility.

Before the XVI century science had been as silent as a poultice; but now a young man who had studied medicine at Pisa under Cesalpino is called to the chair of mathematics at Padua. Thus we see that Galileo like Pasteur was a member of our profession. Though Galileo and Pasteur devoted themselves to discovery and science, they both possessed true medical minds and were truly of us. It was not unusual for Galileo to have an audience of 2000 students in his lecture hall, some of them from the remotest parts of Europe. He was truly the father of physics. Many of his inventions were of great value; some of them have been utilized in medicine. Six years after Galileo's appointment to the chair of mathematics, Wm. Harvey, who had graduated at Cambridge in 1597, arrived at Padua to study anatomy under Fabricius of Acquapendente who was the greatest anatomist of that day. Harvey lived in the full splendor of the renaissance. Whether he was intimate with Galileo or not he doubtless partook of his new experimenting spirit. After returning to London, Harvey reviewed his studies, and reflect-ing upon the valves of the veins which had been discovered by his old teacher Fabricius, he was led to inquire into their purpose, believing "that so provident a cause as nature had not placed so many valves without design." Following this small observation by laborious investigations he discovered the circulation of the blood about 1620. A statue of him holding a heart in his hand, as if studying its mechanism, is still to be seen at St. Bartholomew's Hospital, where he was in charge when he made this greatest discovery of modern times.

Until that time the arteries were supposed to be tubes through which the vital spirits flowed, but Harvey by a new mode of observation, the experimental method, found that they were blood-vessels. He thoroughly studied the heart, the first vital organ, and proved that its action is absolutely mechanical, and thus by the experimental method brought physiology into existence—a science dependent mainly on experiment. With his inferior means he was not able to follow the blood from the arteries into the veins, but now the microscope as a new invention was employed and enabled Malpighi to discover the circulation in the capillaries. After discarding the doctrine of vital spirits, Harvey sought to discover the origin of life, and formulated the dictum now so well established that "all life is derived from previous life."

I wish I could transgress long enough on your time to peptonize and season these pulpy facts to your taste. I imagine that our patients find their medicines so flavored and doctored that they can see the doctor's likeness in every dose. Some patients doubtless find their physician so rotund, slick and rolling as to appear like a good hard pill. Others are a little glum and gloomy and have something in them that stirs the bile so that their aspect is somewhat like blue mass. Some physicians again, like strong and concentrated medicines need to be diluted; while others are sparkling and buoyant like a tonic or effervescent mixture, not a few are weak, aimless and innocent like a placebo. I suspect that some doctors have a taste of total depravity about them else why should some medicines be so condemmed and excommunicated with such holy anathemas!

With such teachers as Malpighi, Valsalva, Scarpa, Galvani and Morgagni, the Italian schools impressed themselves on other countries. The discoveries of Malpighi and Varoli prepared the way for Morgagni to publish the first work on pathology. He was the first to localize disease and observe that certain diseases are limited to certain organs of the body, and do not exist as a scattered humor throughout the whole system. It was not long before every physician attempted to find the place and extent of the disease.

Laennec invented a stethoscope for mediate auscultation and interpreted the physical signs of disease so that with the stethoscope to the chest pneumonia, pleurisy and heart disease are read like a book. Obstetrics which from the days of Pharaoh had been in the hands of midwives, by the labors of Smellie became a science. His forceps doubtless has saved more lives than any other instrument, and he was said to believe in it as firmly as he did in his Bible. Surgery was also advanced by the application of modern methods. Heretofore nearly all operations and amputations as well as wounds on the battle-field had been fatal because no means was known of arresting hemorrhage except the hot iron cautery or immersing the part in boiling pitch, until Ambroise Paré ligated arteries for the first time.

Surgery even in the XVIII century was in the hands of barbers who did the surgical tailoring only as the physicians told them when and how to cut and saw. It was the genius of John Hunter that discovered in surgery something more than bleeding and cupping so as to lift what was a craft into a science. Surgery, indeed, was retarted for the want of anæsthetics, for even those who had hearts of steel found it difficulty to operate on a struggling sufferer, and were deterred from operating since the torture, shock, hemorrhage and surgical fever served only to hasten the unavoidable. I would not presume to detail the usual scenes attending ordinary operations before the discovery of anæsthesia. It is said that Baron Dupuytren, the great French surgeon, was a stern and fearless man, yet as described removing a vesical calculus he is gentleness and tenderness personified. Christison says: "Nothing could surpass the humanity and kindliness of this reputedly rough and ill-natured man. He did not take a single step in the operation without asking and obtaining the child's consent. While he was making his incisions, he was also constantly engaged in patting and coaxing the little fellow, and with such success that he only whined occasionally but never cried. At the same time every step was accompanied by some words of explanation to the students, for which purpose he moved his head from side to side that all might see what he was doing. Of the three-fold duty of operating, soothing and demonstrating no part seemed to interfere at all with the other. The whole operation was over in a very short time * * * * and the child was carried out in the nurses's arms all the while calling out 'Adieu Monsieur!' Dupuytren smiling and replying: 'Adieu mon cher petit.'

The difficulties and dangers of surgery before the discovery of anæsthetics and antiseptics were such that operations upon the peritoneum proving invariably fatal were abandoned; yet to the lasting honor of this country, Dr. Ephraim McDowell, of Kentucky, at the risk of his own life, performed the first ovariotomy successfully in 1809. A mob threatened Dr. McDowell for undertaking such operations, but operations upon the peritoneum are now performed daily.

The discovery of anæsthesia also in America in 1846 has enabled surgery to conquer pain, and over-rule nature, to bring living fate out of dead fatality. So great has been the revolution in surgery in the last 30 years that scores of operations are performed now that were wholly unknown then; such for instance as the removal of the appendix (done the first time in America), the radical cure of rupture, crushing of calculi (done the first time in America), straightening deformed bones, bone and nerve grafting, operations upon the gall-bladder and abdominal organs, removal of the whole upper extremity including shoulder-blade and part of collar bone (done the first time in this country), removal of vertebræ, removal of the kidney, removal of the larynx, and removal of brain-tumors. Through the observations of Broca, Hughlings Jackson and Ferrier the cerebral convolutions are known like a geography and brain-tumors and abscesses are located with mathematical precision.

The fever thermometer 30 years ago was a clinical curiosity over a foot long, and owing to its brittleness and cumbersomeness was rarely used. The thermometer now is reduced to the capacity of the vest pocket and is a member of the profession in good standing. The hypodermic needle is another instrument as ubiquitous as the physician himself. It is remarkable that drugs were first injected into the blood by Christopher Wren, the architect of St. Paul's Cathederal, but no application was made of this except in physiological experimentation. The hypodermic needle proper originated within our profession and was introduced by Dr. Alexander Wood, of Edinburgh, in 1855, and has been in universal use and favor for the last 25 years. Even our friends the Homœopaths find it such a convenient apparatus that they having borrowed it from us, also carry it and use exactly the same dose as we do. Since the hypodermic method is confessedly the most accurate way of administering medicine, and since the homœopathic physicians give the same dose and drug hypodermically as we do, I wonder why should the school be so unscientific as to insist on giving infinitesimally small doses and water abundantly guessed at!

Twenty-five years ago the microscope was a luxury unfamiliar to the general practitioner, but it is now accessible to every medical student, so that he is able not only to verify the discoveries of Virchow, Koch and others detailed in our literature, but also to investigate disease and search for the undiscovered. Not only in the dark ages but even in the middle of this century epidemics were frequent and wide-spread and their nature wholly unknown. But now through the discovery of pathogenic bacteria preventive medicine has nearly banished epidemics from civilized countries, and like Christianity science will eventually show the better way to the inhabitants of India and China, and the uttermost parts of the earth. The specific germ in the greater number of infectious diseases has been discovered, and from the giant like bacillus of anthrax to the smallest and latest discovered bacillus of influenza there are many diseases absolutely preventable.

When the cholera reached the English army in the Soudan lately it was completely stamped out in 10 days by boiling the water and observing sanitary measures. The microörganisms were seen first of all by Leenwenhock in 1675, but were not known to have any life or significance. Schwann, of Berlin, in 1837, published experiments showing that putrefaction is due to micrococci, yet this observation had to wait and be rediscovered before it was applied. It was the masterly experiments of Pasteur on fermentation and putrefaction that conclusively proved the connection between bacteria and disease. These discoveries, published in 1861, led Lister to infer that germs were the cause of wound infection and blood poisioning. Lister in 1867 coined the new word antiseptic and introduced the antiseptic era of modern surgery. At that time the larger hospitals of Europe were so infected that almost every major operation was fatal, and some hospitals were about to be closed and abandoned as hopelessly unsafe. Before the time of Lister the treatment of wounds was no better than that of the good Samaritan who "bound up the wound, pouring in oil and wine"—the one to cleanse the other to soothe.

In a short time Lister's method made surgery a safe science, and made blood-poisioning the exception and not the rule in the hospitals of the world. Medicine in all its departments stands now on a scientific basis. Modern methods and instruments of precision give intelligence in treatment and infallibility in diagnosis. We have an unlimited number of new remedies to relieve pain and reduce fever. Diseases formerly incurable, such as epilepsy, myxœdema and diabetes are now treated upon standard principles. Year by year the mortality of sporadic and infectious diseases has been reduced. Malaria, typhoid and cholera are less prevalent, and tuberculosis will eventually become as rare as leprosy; diphtheria and snake-bits are loosing their terror, and serum-therapy, thyroid and other gland-extracts point to the possibility of a revolution in treatment. From Hippocrates to Harvey, from John Hunter to Joseph Lister, great medical men stood aloft like mountain-tops, and have made the centuries memorable and iridescent with discoveries. Thousand of discoveries familiar to physicians I leave unmentioned, all of which, so far as I know, originated within the profession, but some were so important and revoluntionary, like the discovery of Koch's tubercle bacillus and Dr. Roentgen's X-rays, as to flash light upon all sciences.

Some physicians, like Jenner and Lister, are honored on account of a single brilliant discovery, but there are many more like Ian MacLaren's "Doctor of the old School," nameless to fame but loved by grateful hearts for their devotion to duty and the sleepless nights they spent serving others and shortening their own lives by bearing in their own hearts the suffering and sorrows of others. These are they who by self-denial and sacrifice become evangels of health, and ever endanger themselves that others may find life more pleasant and prolonged, and feel at all times that their family physician is enough of a hero to die rather than desert his post in time of peril.*

MEMBERS OF THE GRADUATING CLASS!—After a survey of our common heritage in the manifold discoveries of medical science it would not be like our college, if I did not convey to you the congratulations and good wishes of the medical faculty of Hamline University, and say a word to you personally expressing the deep and friendly interest which we have felt in you and which now as a benediction goes with you to your new homes.

It is somewhat embarrassing for one who has not reached the far-off-end of the road to eminence to turn around and point out the way to success for you; yet I would be considered indifferent and thoughtless if I did not attempt to inspire you with my reflections, and direct you with some personal advice. If I would paint your horizon from the average medical experience,the clouds hanging low must appear first and then the warm sunshine beyond. You will find the world at first somewhat like an eel, hard to catch, and harder to hold. But while your practice is waiting for its whiskers use every opportunity to improve yourselves. Let the student be still found in the physician and during your odd moments study your cases. Determine to march abreast with medical progress and let systematic methods and careful examinations be the stepping-stones to future eminence. Provide yourselves with the best books and latest instruments, remembering that a good outfit is a helpful accessory, a superior mind is left behind if his horse is inferior. Am I advocating fast driving? Let your first appearance in a community, and your first introduction into a family, be salted with prudence. The fit of an old coat is seldom criticized, for either long familiarity with it or its venerable service disarms criticism.

Let your discoveries be well-developed before they are announced, a theory or thought prematurely delivered as by an obstetric forceps is generally mutilated, and if not still born is dwarfish and short lived, as for instance Koch's tuberculin. Avoid startling notoriety, hurricanes don't come to stay. A suggestive hint often creates a deeper impression than an elaborate explanation. One of your earliest difficulties will be to maintain good spirits, on slender income, and rejoice at the success of another while as yet your own practice is wasp-waisted, and while a weak heart might soliloquize and say:

"And shall I ever live at this poor dying rate."

However, have faith in your own fortune, and never in the darkest hour be induced by money, nor forced by sympathy to do an unprofessional act, for its performance will profane the conscience and sooner or later its reward will collapse with the afterclap. Honorable practice will bring the surest support. Your financial success will in a measure depend upon your financial diagnosis and ability to forecast the physical signs of the paying pocket-book. But, let the golden thread of remuneration be wholly overshadowed by your golden cord of sympathy. Whether dealing with rich or poor, friend or stranger, never try to get all you can. Know that it is better to be righteous than rich.

Be friendly with the profession and regard the prosperity of a fellow-practitioner without jealousy. Loyalty to your own alma mater does not imply enmity towards the graduate of some other school. If you are to advance it will be through what you do yourselves and not through what you undo. Faithfulness to your own patients and not faultfinding with the work of others is the royal road to success and honor. Make a special friend of some experienced physician whose friendship and counsel will be an assistance to you for conference and consultation. Your path will not always be altogether easy. You will be fortunate if you shall not be disturbed by unfriendly intruders and meddlesome neighbors; there are dogs that bark at the moon, so make no reply, but simply pray.

"From small men and mean men
Good Lord deliver us."

You will also find all kinds of patients. Some perchance unreasonable, some impatient, some full of faint, some full of fustian and some so much out of joint with this world and the next, that you will have to beat a retreat and leave them in the Lord's hands however great the pity to leave them in the hands of a stranger. Never allow yourself to be drawn into a dispute with the sick, silence is better than contradiction, and when you smell brimstone in the air take a walk arm-and-arm with common sense. There is a prevailing idea that the crisp remark and tart retort are exponents of superlative ability and warranted competency, but it is the small spirit that gets irritable and impatient. It is a weakness of our nature to retaliate instead of restrain. Retaliation is a caustic that corrodes its own author's memory. The man who can bear unjust criticism with calmness and dignity and perform his duties with tenderness and faithfulness, and believe in the right while pestered by the wrong is not far from the kingdom of heaven.

The ideal of professional bearing is that of independence without arrogance, and humility without servility. While you are the minister of all,

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*Acknowledgement is made to the *London Lancet* for much of the historical material.

you are the slave of none. Professional visits may be short but not abrupt, they may be long but not tiresome, they may be frequent but not redundant, but often enough for the physician to be the first to foresee important changes and prepare the family for approaching events.

When your practice grows fat keep it well uniformed. You need not have so many "interesting cases" that one must be trotted out for ventilation every time you meet a physician or friend. Keep your professional trials under your own hat, and don't ask the neighborhood to worry over your cases, much less should you be made the subject of public prayer by an announcement in the daily press that you and nature are in deadly combat over some 20 cases of diphtheria or 30 cases of typhoid. It is only the quack who magnifies his cases and thinks were it not for his physic, nature would put every one in his coffin. You will seldom find it necessary to announce that your arrival was so timely that a delay of another half an hour would have been altogether too late. A few members of our profession from want of sleep, care, and the depression of over-work, seek repose in narcotics and alcoholic stimulants, and finally end in disgrace and destruction; I would warn you from trifling with a tiger. A record blurred is a career ruined. A man is honored for his character more than for skill alone, for motive is more than machinery. If you would have your character yield the greatest good to yourself and be exemplary to others it must be infused with a destiny high as heaven which makes life more than work and mortality more than materialism. It must be inspired by faith too divine for doubt to exalt your purpose and extend your horizon. Let the alchemy of faith transform selfishness into charity, and despondency into hope, and be an antiseptic against every malevolent microbe, so that the corruptible may put on incorruption and the mortal put on immortality, and life's struggle end in a golden triumph.

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APPENDICITIS FROM A SURGICAL STANDPOINT.

A Lecture Delivered to the Senior Class at the Medical Department of the University of Minnesota.

By James H. Dunn, M. D.

Professor of Clinical Surgery.

(Continued from page 241.)

TREATMENT.

Gentlemen: We have held that appenicitis, at least at the time that we recognize it, is a form of intestinal perforation, and that its further course is the devious one of septic infection; at first in a secluded nook of the abdomen, from which its progress may be most variable, in course, in phenomena and in results; and that the *vis medicatrix naturæ*, aided or not by rational medicine, though exhibiting its usual wonderful powers—powers which all wise practitioners recognize as the only basis of all healing, since at the most surgeon and physician alike can never hope to more than read just disturbed relations, and when possible influence conditions; the forces so tersely termed nature must do the rest.

We have seen that, if there be some dispute as to how successful nature, aided by the physician, is in stopping these perforations or leaks, the most partisan mind must admit: (a) In a small but decided proportion of cases the only prevention of a fulminating and rapidly fatal peritoneal sepsis is prompt mechanical removal of the septic focus and closure of its portal of entry. (b) In the vastly larger percentage of cases, though the danger be materially less, and progress more slow, a hidden enemy, causing anxiety and suffering for days and weeks, confronts us, with a high degree of uncertainty as to the future. No clinical knowledge or instinct, however keen, may predict within considerable range the proximate or the distant outcome of the matter; can only guarantee some danger, indefinite disease, at present apparently doing well. It is neither necessary nor desirable to magnify the direct mortality of these attacks. To prevent death alone is not the sum of all our duties, nor the sole claim upon our activities. It is to most fully restore health, comfort and usefulness, insure against dangers, present and future, by the safest, surest and most permanent means which the circumstances admit. (c) In a certainly very large percentage of cases and attacks the most felicitous non-surgical cure is but an apparent one. Relapse soon or late is to be feared. The chances are apparently even that it will be realized. Given this state of facts, which I think certainly not overdrawn, what should be our rule of action? I have no hesitation in replying: The ideal treatment of appendicitis is immediate appendectomy as soon as the diagnosis may be clearly made. There is no other logical, no other exact, no other scientific ground. A definite, well recognized condition is met by a definite, exact, rational, efficient remedy. Depart but ever so little from that deduction, and to the small uncertainties of surgical diagnosis and prognosis are at once added the great fallibility of all artificial indications for timely operation just before the danger line has been crossed. To leave this line of argument is in a measure to quit certainty for hope.

Then, you say, for once the matter of treatment is most simple: diagnose, operate. But wait. Do I advise routine appendectomy as the proper treatment of appendicitis? By no means. The point I did venture was that the *ideal* treatment is operative. This is far from an ideal world as yet, and I find none so practically incompetent, so dangerous to themselves and to the community as those helpless persons who persist in applying ideal formulæ to very unideal conditions. But place before me an ideal patient in ideal circumstances, an ideal physician who promptly and surely diagnoses the condition, and an ideal surgeon, and I will venture to tell them what to do without a moment's hesitation. Operate at the earliest moment that my premises can be fulfilled. But unless your experience should be totally different from mine, don't do any such ideally foolish, and, I believe, ideally perilous thing. According to my experience practice varies from theory, among other things in these:

First. The patients and their advisers may not; on a *truthful* presentation of the situation, let you. That, however, need not and should not prevent your giving sound advice; and though first given, this reason is not a prime objection.

Second. You may not be consulted in the matter at this early stage, and later, several days having elapsed since the leak was sprung, nature having set up barriers against infection, you will need to consider how and when, if at all, you plunge into and mix in a struggle upon a simple formula constructed for a decidedly different and more simple state of facts. Of course the advocates of appendectomy may reply: Every case of appendicitis should be attended from the first by a competent physician and a skilled surgeon. I confess to being more accustomed to meet and more concerned with what *is* than what some Sir Oracle conceives ought to be; and I think we need not further consider this reply.

Third. The patient's environment and conditions may not be such as to make early operation safe. If the average mortality of an attack of this disease be not very high, (and I should not place it above 20*), and if at this early date, i. e. as soon as the diagnosis is clear, no one may predict within 20 per cent. of the probabilities of its severity, I submit that the conditions for successful operation and after care must be very perfect to justify the placing of known *actual* operative risks upon a patient as yet only in the presence of *unknown* and *possible* dangers. Nor is it sufficient to resort to a proposition like the following: In the début of a disease with an average mortality, say of 20 per cent. and under, surgical conditions warranting a probability say of 10 per cent. mortality, operate because you advance the patient's chances by 10 per cent. I will not argue whether or not such logical surgery be morally admissible from the surgeon's point of view. It certainly will not comfort the patient, less interested at such an hour in statistics than in living. He would surely prefer being one of the 80 per cent. to escape without operation than to contribute to the glory of statistical surgery as only one of the ten fatalities, unless you can satisfy him that the ten surgical deaths are pretty sure to fall among the twenty to be sacrificed by non-surgical measures. It is only when we may promise nearly absolute freedom from the operative risks *per se* of appendectomy that this ideal or logical procedure will, or perhaps should, be accepted as the routine treatment. Under proper circumstances this operative risk is indeed small. In moments of enthusiasm almost pardonable in view of the marvelous advances in abdominal surgery, successful operators are prone to regard these risks so nearly *nil* as to be fairly negligible. Scientific candor, however, must admit a risk in all operative procedures which ought never to be entirely lost from view. That the operation in question happens to be an intraperitoneal one ought not to cause the surgeon to rashly deny nor the physician to mistakenly magnify this risk. The region and the nature of an operation may specialize the dangers, but need not augment them. We may as well be fair and say that at present under the most competent hands the mortality may not be more than one or two per cent., easily rising to five or ten per cent. in general application. Hence for the present, theorize and debate as we may, in practice each case must be considered on its own individual merits. No simple routine rule justly meets the responsibilities; nor will, I fear, the most elaborate discussion of the indications for operative interference greatly help you towards any infallible course of action. There are, however, two important categories of cases in which operative indications are sufficiently clear to be readily formulated with much precision.

1. Those in which, usually from the start but sometimes after longer or shorter evidences of a moderate and well localized process, the indications of a fulminating sepsis break out, predicating a sudden and gross perforation, by gangrene, by ulceration or by rupture or scaling of the protective barriers; in short, the indications of a septic invasion with which the affected organism shows no ability to cope, no power to surround or to localize. Here the only difficulty is diagnostic. In fact, about the only great skill in either medicine or surgery is diagnostic. The medical brother who never loses a case of appendicitis never recognizes these cases at all. As a rule the pulse and the temperature rise rapidly. The pain, tenderness and distension instead of tending to localization, become more generalized, and the aspect of a general peritonitis is assumed; but so many surprises of abdominal sepsis await the individual who has just learned something from a few horrible examples and settled his wavering judgment by a recent experience, that I refrain from telling you how to promptly recognize this

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*N. B. This estimate includes those cases of acute peritonitis, which our more optomistic brethren leave out.

septic explosion. Sometimes, especially if the septic diffusion occur after a preliminary attempt at localization, the temperature may markedly fall, the pain and other distressing symptoms abate for a time; but close study shows the patient to be deeply septic and the apparent betterment illusory. Early, prompt, decided action is your duty. Open, cleanse the abdomen, remove the appendix, if, as is usually the case, this may be readily done, and effectively drain the infected district. These patients can scarcely be said to be in danger, they face destruction; and while facilities and great skill are not to be neglected, the exigencies of the situation justify attempts at rescue which, applied to one in no immediate peril, would be quite criminal. Happily, too, the technique of these cases is the most simple, and the operative skill is less taxed than in any other class of cases. There is very little difficulty in finding or in removing the appendix. No delicate questions of how to avoid breaking protective adhesions, no great responsibility about hernia, because the wound must be left open. A free incision is made, the often gangrenous appendix brought up, ligated off, the infected region carefully wiped out and irrigated with warm normal salt solution. The irrigation must be so managed as to wash out and not further disseminate the sepsis, its extent being commensurate with the extent of the exudate within the abdomen, as traced upwards from the focal point, and the pelvis being specially attended to. A shaft of iodoform gauze being sunk into this corner of the abdomen crowds the viscera away from a larger or smaller area external to and below the caput coli, and sucks out any excess of fluid. Should purulent collections have extended in other directions, smaller strains of gauze may be carried out from the main shaft to keep them drained. At most the wound is but partially sutured; I prefer to leave it quite open to be closed subsequently by secondary suture. In three of the cases recently presented various adaptations of this method have been followed. In Case III. a four and a half inch vertical incision was rapidly made, the appendix removed, pus cavities cleansed and a large quantity of gauze carried into the chief ramifications and left projecting from the wound. In Case IV., a second more direct opening was made in the loin through which the gauze was drawn and the anterior opening closed primarily. In Case II. the operation wound was nearly closed, but a small wick of gauze passed down to the site from which the appendix with its small but foul abscess was removed.

2. The second class of cases in which the indications for operative interference may be easily determined are the relapsing ones. When an individual has experienced from two to several clear attacks of appendicitis, mild or severe, it is sound advice to insist upon appendectomy as soon as the attack has subsided as completely as it may be expected to do, or at the début of the first symptoms of subsequent relapse. Something may be said pro and con of these alternatives. But in the interval we have the great advantage of choosing our time and arrangements, and the patient, having just successfully undergone a septic invasion, may be presumed to have acquired a certain immunization; at least, he is accustomed to confinement. On the other hand, the patient will ordinarily submit more gracefully in the face of disease than when he has apparently recovered, at least until a dangerous number of relapses bring tardy conviction. Interference at the beginning of an attack has more or less of the disadvantages of an emergency operation but possesses the advantage of saving time and eliminating the dangers of the threatened attack. The interval would be the choice of the surgeon, the beginning that of the average patient. In a few of my cases operated upon in the beginning of a relapse the results have been entirely satisfactory, and lead me to believe that the danger of operating promptly at the debut of a relapse is not much enhanced by the presence of an active infection, provided it be promptly nipped in the bud, so to speak.

Although appendectomy in the interval is ordinarily not difficult, I would caution you about over boldness in these cases.

1. We do sometimes in just these cases stumble upon conditions which demand all the resources of the surgeon experienced in abdominal work, adhesions, changed anatomical relations in the face of which the inexperienced will needlessly sacrifice the life or after comfort of his patient.

2. In the next place, the patient is not in the face of immediate danger and cannot justly be submitted to needless risk. There is time to secure the best hospital advantages and the greatest operative skill; for there is necessity of taking the greatest precautions, not only against loss of life but against subsequent hernia, etc. The mortality ought not to be above one or two per cent. in these cases. You must remember this, and unless you feel sure that by experience and training you fall in this class of surgeons and your surroundings admit of such results, you ought not to jeopardize the patient's interests. Sound morality ought to find the path to duty; but fortunately a sound head is all that is needed. Only the weakness of vanity or of ignorance leads astray. The interests of patient and attendant, broadly viewed, never really clash, though sometimes one is surprised to find how many mistakenly appear to think so. In all walks of life the majority of failures are due to foolish desires to do the impracticable, upon some vague or visionary notion that it is more glorious, more profitable or more easy; when in fact it is quite the reverse.

In the cases of appendicitis remaining, after eliminating these two more or less well marked varieties, viz: the fulminant or so-called perforative cases on the one hand and the relapsers on the other, the task of laying down indications for operative interference is indeed great. I must admit that at the bedside of such cases I have to occasionally feel my way without fixed rules, and on looking backwards find errors of omission and commission which give little confidence of increased ability to avoid them in the future; and therefore must confess little hope of teaching others any approximately infallible indications, at least in detail. I will therefore waste no time in such futile attempts, but briefly draw such rough outlines as I believe to be fairly settled and useful.

It has been remarked that if the tendency of an acute appendicitis is to localize during the first days and especially at the end of a week, there is not often cause for hasty action. The patient may or may not be destined to recover, but the probabilities of sudden mischief are not great. Besides, this stage of the disease is not one of election for operation, since there is danger of distributing active infection, particularly if the operation be completed and the appendix be removed. The system is battling with and more or less overpowered by active sepsis which we may only in part remove. Operation at this stage is largely the opening of obscure abscesses in the course of which even great clinical judgment must waver between doing too much and doing too little. During this stage I confess to great conservatism, and do not often at once advise interference, at least so long as the patient's condition holds fairly good. Some have aimed at greater advisory precision by asserting the presence or absence of suppuration as the touchstone of operative indication in this intermediate stage of appendicitis. Like most ready advice this is but a ponderous platitude; because in the first place the practical problem is then none the less perplexing under another name. Instead of to operate or not, the question, with no less of perplexity, becomes: Is the exudate purulent or not? Unless indeed more or less suppuration be always present; for I do not remember to have seen an active case opened without some purulent exudate present, ranging in quantity from a few drops to a pint or more. On the other hand, exudates as large as a child's head sometimes disappear gradually by absorption. Furthermore, infections are no longer measured in terms of pus, which is but a secondary accident. The patient and the progress of his infection must be watchfully studied. If the one be failing and the other gaining, along whatever lines, ordinary clinical judgment would indicate opening into the fountain head of the infection and diverting and draining out instead of into the system. On the contrary, if the patient fully holds his own or improves, however slowly, while the virulence and extent of the sepsis recede, we may wait with vigilance. If recovery is to take place it will in most cases be apparently quite complete by the end of the second week, certainly before the end of the third. Not rarely cases show a decided betterment up to a certain point when they remain in a semi-invalided condition, marked by slight sepsis, local tenderness, small or moderate tumefaction about the caput coli, and with a tendency to increase of symptoms upon activity or relaxation in dietetic care, a condition often termed chronic appendicitis. We have here as a rule a well circumscribed chronic abscess which ought to be opened, and much delay is at least useless. There is, however, a point of considerable importance in the proper operative technique in some of these cases, viz: it is well to open and well cleanse the abscess cavity independently of the general peritoneum sac. Indeed, if carefully studied and understood before attacking them, these cases in which the leaking appendix and its adjacent abscess well shut out from the general cavity often lie behind and external to the cæcum may be completely dealt with without opening the abdominal cavity at all. In case the inexperienced or unwary operator first recognized the situation after opening the abdomen, he should close the incision and open by a lumbar wound similar to the cholotomy incision of Amussat.

Thus, I maintain appendicitis is but a conventional term applied to the various stages and conditions resulting from sepsis entering by various defects of the appendix, and the phenomena of which naturally preclude any very strict classification. We may, however, I believe, discern four practical phases of the resulting sepsis very useful in tracing the indications for surgical interference. It is not less incumbent upon the physician to keep his eyes and his mind open for the prompt recognition of the indications for surgical therapeutics than for the surgeon to unprejudicedly perceive and admit the powers and conditions of non-surgical therapeutics.

In resumé, I may repeat:

1. In all fulminating outbursts of peritoneal sepsis with no indications of localization within twenty-four or thirty-six hours from the onset, operation is imperative. It is only necessary to be sure of the general diagnosis, i. e., of intraperitoneal infection, and to act promptly. We need not hesitate because its appendiceal origin is not certain. Exceptionally when profound collapse exists a brief delay to rally the patient's forces may be advisable; otherwise the sooner the better. For, to operate much later than thirty-six hours after the perforation, in the worst cases, is rarely successful. In these the mortality is high. Action comes for the most part too late.

2. The tendency in a given case of this disease to relaspe and to recurrence is so evident an indication for appendectomy that the most conservative, even such as practically refuse to regard acute appendicitis as in any case properly a sur-

gical matter, with one accord grant the justice of this indication. The only difference of opinion appears to be in the amount and severity of relapse which is sufficient to arouse different minds to decisive views. There are those who, slow to recognize our first or perforating variety, and generally too tardy in seeing the need of prompt surgical relief in these emergent cases, incline to require a wholly needless and unreasonable, not to say dangerous, amount of proof in number and severity of relapses before doing their responsible duty in advising these sufferers scientifically. Although spontaneous recovery after many relapses is by no means impossible, the danger, the discomforts and the rarity of a completely favorable termination after the beginning of a second atack are in my judgment so great as to clearly justify appendectomy.

3. In acute cases which after a period of betterment become chronic, it is generally useless and often dangerous to wait indefinitely for nature to complete the cure. If three or four weeks have not sufficed for a complete resolution and the cessation of even slight sepsis, the localized focus and its point of entry ought to be removed. I remind you of Case I., City Hospital, who for six weeks had been more or less deeply septic before septico-pyæmia placed him beyond the reach of rescue.

4. It is in the majority of acute attacks, showing as they do a decided tendency to localization, that the greatest perplexities confront both physician and surgeon, in seeking for conscientious indications for or against using the knife. If circumstances favor the most expert surgery and after care and the disease be recent, one to three days from the onset, I think we may fairly lay the facts of the situation before the patient and let him choose between the slight dangers of modern surgery in removing the appendix and its adjacent infection, with its positive results, and the unforeseen dangers and dubious sequelæ of a medical course. However, in advising this ideal treatment, with no great actual dangers in sight, I believe the attendant is morally bound to weigh his opportunity and skill very carefully and to be perfectly candid in his statement of the situation, lest the patient be frightened from dangers potential into those which may be actual. In view of the very small percentage of these cases which, once having shown a decided tendency to limitation of the infection, perish of acute sepsis, and in view of the considerable proportion which make a comparatively complete and prompt recovery without surgical interference; as well as in view of the greater safety and completeness with which many of the incomplete recoveries may be dealt with after the virulence of the infection has in great measure subsided; or when circumstances preclude the conditions for the most perfect surgical treatment, especially when the process is at its height or early decline, say from the fourth to the fourteenth day at least, on the whole, an unfavorable period for complete appendectomy—it is, I think, more prudent to carefully watch and study the struggling forces, interfering only when the patient appears to be threatened directly, and then doing only that which appears best to tide over the present dangers by drainage, even though the appendix be left. A subsequent operation may or may not be required to remove the organ or to repair the possible hernia incident to an operation of emergency. Of course in thus feeling our way through the obscure course of a deep infection, we cannot hope to entirely escape error. Great clinical experience and judgment enable us to more and more clearly approximate but never to infallibly find the right course. Though an ideal or diagnostic method may be more strikingly laid down and more easily followed, it may be well doubted whether its pursuance would lead to fewer or to less lamentable errors.

TECHNIQUE.

I trust it is no longer necessary to preface any particular operation with the necessary details of asepsis or a list of the instruments required. The man who needs a specific receipt for surgical cleanliness on any occasion, or who does not know what instruments to have ready has no business with abdominal or any other surgery.

The incision most commonly employed, especially in appendectomy, is the vertical one along the external border of the rectus muscle. In intermediate operations the oblique incision from one to two inches above and parallel to the outer two-thirds of Poupart's liagament, has many advantages in opening and draining pus cavities without entering the general sac. It crosses below the end of the cæcum. From its outer end those burrowings outwards and exterally to the latter organ are readily commanded, or, should the pus be found tending towards the pelvis, the internal end of our cut is available. This incision gives incomparably better command of the corner of the peritoneum excluded by adhesions, and, with the usual courses of the exudate, with less danger of opening the protected cavity, and is much more efficient in adequate drainage than the vertical incision. The protecting barriers for the most part lie above and internal to this incision, while the purulent collections are for the most part below and external to it.

The length of the incision should be graduated to the work to be done; not needlessly long because of an increased tendency to hernia, nor yet so small as to embarrass the operator in accuracy, speed and thoroughness of execution, or subsequently to impede free and surgical drainage. From one and a half to five and a half inches is in my judgment about the range between extremes which various conditions impose. From two to four inch incisions are the most common. Operations in quiescent cases with few or no adhesions, in a moderately thin abdomen, require but small vertical incisions, from one and a half to two and a half inches being ample. Extensive adhesions, fat and thick abdominal walls, often lead the judicious operator to considerbly enlarge the primary incision; or the discovery of unsuspected conditions may lead him to vary its course, or even to add a second or independent opening.

Having opened the abdomen, the next step (in all but the intermediate and incomplete operations) is to locate the appendix. In these excepted cases we simply drain the pus cavity, and unless the appendix may be readily and without danger removed make no extended search for it. To readily find the appendix is ordinarily not difficult, but I have known surgeons of much general ability to fail after most diligent and prolonged search in some instances, and in others to find it only after a chase which exhausted the operator perceptibly and the patient perhaps fatally. Such lamentable errors are due to want of precise methods of search and to ignorance of the normal and pathological anatomy of the parts involved. To skilfully deal with these cases we must remember:

1. The usual and aberrant anatomical relations of this organ. We have here a number of diagrams which may help to elucidate some of these points. Here is one showing the fœtal intestinal tract at the twelfth week. You observe the comparatively great size of the cæcum. In the next, representing a later period, the distal part of the cæcum though greatly atrophied is yet larger than the final appendix and but little differentiated from the proximal portion. Finally, at birth, we have the organ as a rudimentary appendage springing from the apex of the cæcum at its inner and posterior side. The form of the cæcum and consequently the apparent relation of this appendage to it varies somewhat as shown in these four types drawn after Traves. Whatever the variation of these forms of blind pouch may be, the junction of the appendix with the apex of the cæcum is invariably and necessarily at the junction of the three flat longitudinal bands on the colon; hence by following these two lateral bands to their confluence we may place the site of the proximal end of the appendix beyond dispute. Though ever so completely disguised, we know its base must stay behind this point. Where its body may lie is another story. From this point the organ may, to use the simile of Drs. Bristow and Fowler, lie secluded in any of the cardinal or semicarinal points of the compass. Its disposition in disease is not necessarily that of health. This is especially the case in the chronic cases which naturally and more or less successfully crowd the offender out of the general enclosure.

2. We need therefore to study the nooks into which it is accustomed to retire when repulsed in the pathological struggle. Some of its favorite haunts appear to be pointing down into the pelvis, from which we note a tendency of the exudate in some cases towards the bladder. Often it points across the psoas or a little upwards towards the sacral promontory. When diseased it appears to me, at least ultimately, to very often squirm upwards behind the colon on its outer or inner borders, so that in chronic cases with little exudate we often find a little lump at the apex of the cæcum or extending up on its outer border, sometimes on its inner side, indeed sometimes directly behind that organ; which to sight may be in no way suspicious or capable of differentiation, but which gives evidence to the experienced finger and after a little careful digging with nail and phalanx yields to our surprised eyes the well hidden offender, now shrunken and crumpled into a snail like roll, an atrophied and scarred outcast, now plump and luxurious in its more recent evil dimensions, or again large and bloated like the rapidly dissipated vagabond we seek.

In early operations there is rarely any trouble in finding the organ. On opening the abdomen we come at once upon the clearest evidences in its immediate neighborhood. We have but to follow the smoke to find the fire. No firm adhesions bar the way. Swollen by recent inflammation, instead of an atrophic, unrecognizable rudiment, buried in organized exudate, we find a very tangible, magnified organ, recognizable and readily found by the surgical tyro. Hence of all forms that of the primary acute appendicitis at its début demands the least in surgical technique of the operator, but perhaps more in ready and accurate diagnostic ability. He has but to separate the slightly agglutinated parts, when perhaps a little or a considerable offensive pus wells up as the slightly adherent appendix is raised, to wipe out the small or medium abscess cavity with a bit of sponge, gauze or cotton, then perhaps cleanse with a bit of sponge dipped in one to two thousand bichloride or other antiseptic solution, dry, ligate off the appendix at its mesentery, touch the stump with a rod dipped in carbolic acid, push it a little into the lumen of the bowel, and stitch the serosa over it with catgut. Possibly a slight local ablution of this corner of the abdomen with a warm salt solution and drying by gauze sponges completes the toilet, and there remains but to carefully close the abdominal wound. Some judgment is necessary in drawing the line at those cases in which drainage must be used. If the abscess is larger than a walnut and not well circumscribed, it is rarely safe to close; but in lesser well localized infections when it has been possible to neatly remove them and thoroughly wipe out the infected spot, with no oozing from torn adhesions, I have met with no trouble in closing without drainage. The more extensive the infection and exudate, and the less clear its ex clusion by barriers, the more free and imperative the necessity for drainage. Now with border line cases the wound may be nearly closed with a few strands of catgut, a rubber tube or a wick of gauze carried down to the side or apex of the cæcum and out through the bottom of the incision; again, the whole wound must be left open and a shaft of gauze sunk into the cess pool, which we have cleaned of its contents but not of its imbibed filth. If the pelvis or other cavities be involved a branch of this main shaft must extend into the lowest recesses of the pocket. The abdominal cavity is only to be irrigated as far as the sepsis has extended. Even when the exudate is general it is often found that the most virulent portion is largely localized, and this latter must be first fully washed and wiped out before the general cavity is irrigated for the removal of its less virulent débris. In these usually hopeless cases counter opening at the umbilicus or in the opposite loin is liable to be necesssary if we hope to adequately drain. In such cases success will rarely follow, and then because the omnipresent pus is a product of a very benign infection.

ORIGINAL ARTICLES.

ACUTE LOBAR PNEUMONIA, ITS TREATMENT.*

By G. D. Haggard, M. D.

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Acute lobar pneumonia is the accepted term which locates the grosser lesions of a disease which Flint contends is one of the acute general infectious fevers, febris pneumonia, being as much systemic as is typhoid fever, with its more marked and constant lesions in the ileum.

Whatever degree of importance attaches to the specific cause, Flint's conclusion, clinically reached, gets added support from the finding of the bacterium in many other lesions, consequent to, or concurrent with the disease.

In attempting to discuss the treatment of this disease we recall that Dr. Tyson, in his late volume on Practice, says: "It is unsafe to recommend one line of treatment in this disease." This essay may help to confirm the statement.

With great agreement authors say: "The uncomplicated cases, like other acute infectious diseases, tend to recovery; are self-limited and require little or no treatment." But deaths occur in this class of cases, which also is but a small part of the whole number.

From this position of little or no treatment, some demur. Delafield urges active treatment in the first stage of twelve hours hoping for abortifacient success, which is admitted to be occasional, not frequent. Dr. Graham says: "We do not know to what extent we may modify the course and intensity of this disease by treatment," "but we can assist through the critical periods."

Considering this a systemic disturbance precipitated by external conditions unfavorable to health, by internal accumulations of hurtful débris, with inevitable bacteria and their toxins superadded, with every vital and conservative function below par, what wonder that depressant agencies, supposed to be remedies, did not moderate the course or intensity of the disease, became unsatisfactory and are condemned.

It is rational to remove the cause or some of the causes. The bacteria are "free lances." We may "have a club for them" but they are beyond our reach; except we cut off their supplies they are unhindered.

Can we not remove the débris by elimination?

If this disease can be modified by treatment, as this paper will claim, the modification will lessen the critical points which increase in number and gravity in the latter part of its usual course. That the disease can be modified presupposes that we note the responses of the system, the conservative processes in favorable cases, that we institute them in an accelerated form in similar stages in other cases.

We point to temperature reduction as a measure of success because normal recovery presents this change when the disease process is spent. This fall of temperature differs from that of cold baths or antipyretic drugs. These latter are too quick to last, and are temporary because they do not depend on favorable changes in the diseased tissues. Temperature reduction from elimination is more lasting because the object and incidental cause of temperature is removed. The purgation from waste matter and toxins should be a positive element in even the expectant treatment, if that treatment is expectant of support and respect. If nature is able to take one through this ordeal without or in spite of a physician as some aver, it is worth while to note and imitate the processes.

If the interpretation of Cantani which has the support of Drs. Hare and Osler be well founded, high temperature has its good offices and should not be arbitrarily suppressed. It aids conservative processes, limits, overcomes and destroys elements of danger, while low temperature aids infection.

If high temperature be considered an evil to be combatted, we are not well armed to the task. Applications of cold are thought safest, but are offered with many cautions which prove their power for evil. They are denied to the young, to the old, and to the severely stricken; are safest in those moderately involved.

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* Read before the Hennepin County Medical Society, May 3, 1897.

In the natural history of a simple fever, when heat and its attending and supporting factors have done their work, free elimination follows. If these stand in a conservative relation, early elimination would moderate these fires, and in practice does.

Frequent abortion of this disease in the first stage can be secured by elimination of the soil and by support of tonics, especially to heart and vessels. Occasional cases aborted after free purgation have been attributed to calomel, other factors being overlooked. Still other cases, where elimination has been completed and quinine given, have been credited to quinine. Each observation is less than half the truth. The principle underneath calls for actions, not special remedies.

Left to his own promptings the patient would have abundance of heat for he is cold; he would have water for his great thirst; cold and elevation for his throbbing head; a free diaphragm and a depleted portal system because of dyspnœa, and freedom from pain in side, so he holds himself in fear and dread.

We will cover him warmly but lightly; put hot bottles to sides, legs and feet; mustard paste to calves of legs; a hot compress to painful side; give a thorough purge. Give freely of hot water often, it will wash away the toxins, will dilate distal vessels better than trinitrine; the addition of asclepias and ginger will speed these effects. Having deported the blood to distal arterioles we may support the dilated veins and right heart by hydrastis, or quinine, or both. This measure will also check exudation from leaking vessels in lungs and pleura.

Discussing separate features of a disease beyond control, authors give first place to pain. The patient may be excused if this is his first plea. Opium is held to be the last and most undesirable remedy. Ringer says, "few require it." It is possibly given more often than withheld. This pain is rapidly moderated, (1) by diffusives, (2) by local heat, (3) by strapping, (4) by action of tonics. The relief obtained by straps or a bandage, is equal to that of morphine and has none of its disadvantages. Dyspnœa is relieved by (1) the purge, lessening congestion; (2) diffusion or deportation of blood; (3) by restoring competence to veins and right heart.

Headache from congestion and state of blood is moderated by these measures, which may be supplemented with 10 minim doses of fluid extract of cimicifuga. This drug will combat delirium, decrease pleuritic pain and moderate cough. The tenacious mucus is freed by hot water taken, and lessens with decreasing congestion. Sleeplessness due to pain, cough or dyspnœa is treated by removal of these causes as above. If due to exhaustion this can be met by food and stimulants. Pyrexia under 105° is best untreated; drug antipyretics are dangerous. Applications of cold are safer. Yet the attendant in a great number of cases gives the direct antipyretic. A small degree of cold as advocated by Chumier, of 8-16 degrees below the body temperature, may act as a stimulus. Greater cold is depressant. When a cold bath must be fortified against, either before or behind; a grave error has been made.

Under rapid elimination and free diaphoresis, temperature falls quickly and finally. The right heart and veins connecting therewith, are engorged, are paretic, dilated by poisons. It would be folly to "bleed a person into his own veins," they are the most in need of depletion. Here again is elimination in order, with vascular tonics following the diffusion of blood to the periphery. In later stages, these points cared for, the heart is supported by food and stimulants. The heart can be better sustained by capsicum than by alcohol. Alcohol is said by a good authority to be best omitted except as a cardiac tonic. Kellogg has shown that it lessens muscular, nervous, mental and nutritive processes at once and all the time.

Alcohol has been supposed to be most needful in alcoholics and aged subjects. Capsicum has been well recognized as incomparable in recovering patients from the typhoid state of delirium tremens where alcohol would not. Hence it is better than alcohol for the heart. If it be objected that in this case it was given as a stomachic, nevertheless it acts as a cardiac tonic; and will manifest its power through the vascular system long before any possible stomachic effects appear; but, happily, this latter also appears and in better form than if done by alcohol. Weakened circulation can be naturally and rationally aided by massage. Persons with chronic valvular disease profit by muscular pressure on veins from exercise. Minor degrees of congestion are found in the sedentary, so massage would be rational. It has been of great service in some cases for the writer. Delirium has been controlled as mentioned above. Diarrhœa has yielded to diet and astringents, in middle aged as well as in young or old. Astringents can replace opium here. Below is a brief report of three cases supporting these views.

April, 1895. F. N., male; aged 22; pharmacist. Felt unwell all day; retired at nine; had severe chill at 1 A. M.; seen at 4 A. M.; severe congestion of head and neck; nausea; vomiting. Headache. pleurisy excruciating; short cough; resiration 60; pulse 120; temperature 105°. Dull percussion and exaggerated vocal sound on anterior middle lobe, right side. Under treatment temperature fell. Second day respiration 35; pulse 120; temperature 99 2-5°; slight pain in side; râles reduced. Fourth day chill; temperature 104 2-5°; purges and diaphoretics. Sixth day sat up. Seventh day out of bed. Tenth day worked full time.

March, 1896. R. M. Male; 28 years. Had severe chill at 11 P. M.; seen at 3 A. M. Delirious; screaming with pain; clutches at sides and calls for help. Face dusky red; eyes injected; could not count the respiration; pulse 130. temperature 104 4-5°; left lower lobe involved. Treated as above. In ten hours removed to hospital. Temperature fell steadily to 101° at thirtieth hour; nails blue; face dusky; pulse weak. We feared fatal issue, but charged some bad scores to pilocarpine and changed to capsicum and quinine. Patient walked to bath on fourth day; sixth day went home on foot. On tenth day, slight cough, some dullness, little pain.

February, 1897. M. E., aged 40. Had severe chill four hours ago, can hardly breath for congestion and pain in right side; severe headache; vomiting; characteristic sputum, bloody; had been delirious. Pulse 120; temperature 104 2-5°. In twenty hours temperature 102°. Third day temperature 99°. Fifth day patient up, some râles and soreness of side for a week.

These patients were not perfectly treated by the plan above, yet the temperature declined rapidly and finally; pain, cough and congestion decreased in same measure; no extension occurred from hour of beginning treatment. No severer cases have been seen by me and none more fully characteristic.

TYPHOID FEVER IN YOUNG CHILDREN.—Rocaz says that the onset of typhoid fever in young children is more frequently sudden than in adults, and its appearance is often marked by a sudden elevation of temperature, the thermometer rising in a few hours from normal to 104° and more. Pillet and Barthez think this sudden onset indicates an altogether peculiar gravity of the disease.

The intestinal symptoms are generally less marked in children than in adults. There is a rather exact relation between the number and extent of the ulcerations on the one hand and the age of the patients on the other. The younger the children the fewer and smaller the ulcerations. Constipation is the rule during the early days of the disease; it is obstinate and does not yield sometimes until after the administration of several purgatives. When it does not continue during the course of the disease, it is replaced by a slight diarrhœa, which presents nothing characteristic. Hence it may be readily understood that intestinal perforation and hemorrhage are excessively rare in very young children. Enteritis, on the contrary, is a more frequent complication in children, and it is characterized by the persistence of the diarrhœa after defervescence; this diarrhea is rebellious and sometimes requires an energetic treatment and a strict diet. Vomiting is frequent enough in children to be regarded as a part of the regular train of symptoms of the disease. Lack of appetite in young children is so pronounced as to become almost a veritable danger. Moussous has cited two cases in which the children refused everything, except a few mouthfuls of pure water, for twelve days.—*New York Medical Journal.*

THE ALCOHOL TREATMENT OF CHRONIC OTITIS.—Dr. J. H. Thompson writes in the *Kansas City Medical Record*: If I am not mistaken, Politzer first suggested the use of absolute alcohol in chronic otitis. I have used it repeatedly with great success. Cases of chronic blennorrhœa which were not suitable or severe enough for operation have been cured with alcohol alone. It is only necessary to have a hole in the tympanum sufficiently large for the alcohol to pass into the ear. The treatment is essentially antiseptic and at the same time astringent; that is the alcohol removes so much water from the soft granulations that they ultimately shrink. Even in caries of the bones, I am inclined to think that the remedy is curative. The strength of the alcohol should be one hundred per cent. (absolute).

First clean the ear and remove all granulations in sight; see that the hole in the drum is free; if not, it is advisable to enlarge it preferably with the actual cautery. After the ear is cleaned and carefully dried with absorbent cotton, lay the patient down and fill the ear with fifty per cent. alcohol, which should remain about five minutes. The object of using the weak solution is to get the patient accustomed to it. The alcohol should be made stronger day by day until the absolute is borne without discomfort. Then it can be used indefinitely and I assure you it will be curative in many cases.

Seydel points out that the appearances found after death from starvation of young children, such as emptiness and contraction of the stomach and intestines, and general wasting, are not sufficiently characteristic that a decision can be based upon them in medico-legal cases. It is also possible that, for example, children might be fed immediately before death, or that the direct cause of death might be perhaps suffocation. From repeated examinations, Seydel found that in true cases of insufficient nutrition, there is great atrophy of the thymus gland; he allows that atrophy of the thymus also occurs in other wasting conditions, but thinks that the condition, combined with considerable emaciation and unaccompanied by organic disease of other parts, is a sure sign of wasting from insufficient and improper feeding.—*British Medical Journal.*

Northwestern Lancet.

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A CLINICAL PICTURE OF RABIES.

The last number of the LANCET contains a paper by Dr. Arthur Sweeney, of St. Paul, reporting three cases of rabies. In the LANCET of April 1, 1897, is another paper by the same writer, giving an account of three more cases of this disease, making in all six cases that have come under his observation. It is a very unusual experience for a medical man to have been brought into contact with six cases of rabies in man, and Dr. Sweeney's professional brethren profit by his record of the careful and thorough observations made at the bedside, and not less by his excellent summing up of the conclusions arrived at by a comparative study of these cases, the result being a description of the disease from the clinical standpoint whose equal will be sought in vain elsewhere. For rabies is so rare a disease that not one physician in a thousand sees a case in the whole course of his professional career; many men of large hospital experience are never brought into contact with this affection, and in most of the text-books of medicine it is probable that the writers were acquainted with rabies only at second hand. Indeed this is apparent from the way in which one writer quotes another instead of relating his own experience, and no one knows from how far back has come down the classical description of the dread disease, a description now known to be wrong and imperfect in many particulars. That such an excellent observer as Dr. Sweeney, a man specially trained in dealing with nervous diseases, should be the one to examine and describe six cases of rabies was a most fortunate circumstance, and gives to the world, probably for the first time, a clinical picture of human rabies that is scientifically correct.

An analysis of these cases shows an incubation period ranging from five to thirteen weeks approximately, for as usual it was not possible to be exact in this matter; few bites are inflicted by dogs known to be mad, as a consequence of which when the first symptoms of the disease appear the incident of the bite has been nearly forgotten and its date cannot be exactly fixed. Thus it will be seen that no new light is thrown upon the period of incubation of the disease, whose ordinary limits are usually given as from one to three months. There is good evidence that incubation may be no longer than twenty-three days, but the claim that many months and even years may elapse between the bite and the first symptoms cannot be accepted without better evidence than at present exists.

The one constant characteristic symptom of the six cases was the respiratory spasm. This was brought on not only by attempting to swallow but also by a draft of cold air, the touch of a cold hand, flashing a light in the eyes or any other method of producing sudden nervous shock. Almost as prominent a symptom as the spasm was the salivation, which in this series of cases was missing only in the first case, one which rather took the course of paralytic rabies, a form that is somewhat unusual in man through common in animals. The respiratory spasm and the salivation may be set down as cardinal symptoms, whose presence in a case, together with persistent sleeplessness, should lead to a strong probability of rabies. The sleeplessness as described by Dr. Sweeney is peculiar, in that while the sufferer gets absolutely no wink of sleep he may lie for hours in apparent sleep but really wide awake and staring into vacancy. Add to these symptoms convulsions, high pulse with low temperature, and inevitably fatal termination, and the clinical picture is complete and unmistakable. The shortness of the course of the disease is confirmed by these cases, all of the deaths occurring between the fourth and sixth days except that of the first sufferer, whose case was in other respects quite out of the common run as already noted. Trousseau's statement that death occurs within four days of the appearance of difficulty in swallowing is evidently well founded. With a proper conception of the main features of the real rabies there should be no difficulty in making a diagnosis and distinguishing not only between this and other diseases but between true and false rabies. The disease most likely to cause confusion is tetanus, but of this trismus is so well marked a feature and respiratory spasm and salivation are so little likely to be present that the distinction should not be difficult. Since all treatment of the disease once established has proved unavailing, the diagnosis is not of as much importance to the patient as it may be to others bitten by the same dog, and who have still time to protect themselves by preventive inoculations.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated Meeting, Wednesday, June 2, 1897, at the Hotel Ryan, St. Paul; Dr. Geo. F. French, President pro tem., in the chair.

Dr. C. Eugene Riggs, of St. Paul, delivered an address, illustrated by stereopticon slides, upon,

THE TYPICAL MICROSCOPIC LESIONS FOUND IN THE BRAIN IN INSANITY.

The discussion was opened by Dr. H. A. Tomlinson. In the pathological changes observed in the general paralysis of the insane, he recognized the existence of two types of degeneration which were not more characteristic of the brain than of any other tissue or organ of the body; the one, a hypertrophic change, the other, a hypotrophic change. In the first, a general enlargement of the organ was observed incident to a marked increase in the vascular supply, and a consequent overgrowth of the interstitial elements, resulting in the gradual destruction of the characteristic functional elements. In the other form, the cellular elements have undergone destruction, and an apparent increase of the neuroglia and connective tissue elements exists with atrophy of the vessels and a decrease in the size of the organ.

In the first of these conditions a hyperactivity of function exists. In the second, a rapid development of dementia occurs preceded by a brief outbreak of excitement, soon followed by depression. These cases live long.

In regard to the adhesion of the pia arachnoid, he did not regard it as any more characteristic of general paralysis of the insane than of the changes of senility or primary degeneration. The more he saw of the pathology of mental disease the more he believed that degeneration is the same thing everywhere, and that it follows these two distinct types: the atrophic or hypotrophic and the hypertrophic.

In regard to alcoholic insanity, the changes observed are not characteristic of that condition alone, they are present as a result of the action of other toxic agents and are found in those who have been sane as well as in those who have been insane. In the study of these cases it was his custom to secure sections from several regions of the brain and by the several methods of staining to develop the various structural features. He had records of 150 cases so pathologically studied. Among these were three cases of acute insanity. The changes found in these were simply exaggerations of the changes in the cortex which are characteristic of cell fatigue. These changes were the result rather than the cause of the insanity.

It was to be considered unfortunate that in autopsies upon cases of insanity the general pathological changes in the body at large are not reported. No post mortem upon the body of an insane person should be regarded as complete that does not include a comparison of the condition of the brain with that of other organs.

Dr. Haldor Sneve, of St. Paul, said that the thanks of the Academy were due to Dr. Riggs for his interesting demonstrations even though they may not establish any very definite pathognomic changes.

One point of interest lies in the fact that most of these changes are due to toxic conditions. That any changes characteristic of general paresis are constant is not yet demonstrated.

The changes shown by Dr. Riggs as discovered in epileptics have been disputed by others. Nevertheless this mode of research is a step in the right direction. The methods of Bevan Lewis have been serviceable and are likely to become the more so as we understand more, through the labors of Golgi, Wilgart and Cajal of the physiology and histology of the brain cell.

BOOK NOTICES.

A SYSTEM OF PRACTICAL THERAPEUTICS. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia; etc. Volume IV. Illustrated. Phila: and New York: Lea Brothers & Co. 1897. [Price, $6.00. To subscribers to the System, $5.00].

Although nominally the fourth volume of a series, this work is complete in itself and forms a treatise upon the whole subject of therapeutics in the widest meaning of the word. That is to say it deals not alone with drugs, which are commonly referred to when the treatment of disease is spoken of, but treats also of all the numerous measures auxilliary to medicines which enter into modern methods for the management of cases. Thus hydrotherapy, electricity, massage, inhalations, climate, food, mineral springs and a variety of other important methods of treatment, not included in materia medica, find a prominent place in this book.

The arrangement of the book is that of separate chapters on particular diseases, each chapter by some writer whose name is well known in connection with the disease of which he treats, the whole being edited by Dr. Hare, who contributes the chapters on influenza, scarlet fever, measles, diabetes mellitus and the internal parasites. Thus hydrotherapy is described by Baruch, the treatment of syphilis by Martin, of the nasal passages by Fletcher Ingals, diphtheria by Park, pneumonia by Herrick, and so on throughout the list. The whole collection of monographs forms a work on therapeutics of the highest practical and scientific value.

MEDICAL CLIMATOLOGY. By S. Edwin Solly, M. D., M. R. C. S., Late President of the American Climatological Association. Illustrated. Phila: and New York: Lea Brothers & Co. 1897. [Price, $4.00].

To send a patient away for a "change of air" is no longer kept as a last resort nor as a convenient method of disposing of an intractible or incurable case. Nowadays it is one of the first things to be thought of in dealing with certain affections, and it is an important part of a medical man's knowledge to be able to recommend the right change of climate for the particular case with which he may be dealing.

The object of Dr. Solly's work is to make a scientific study of the various climates of the world that are used for therapeutic purposes. Most of his attention is devoted to the climates of different parts of the United States, and they are studied particularly with regard to their bearing upon the treatment of phthisis, which is of course the disease for which change of climate is oftenest prescribed. The medical practitioner will find the work an excellent guide in this matter and will often be glad to be able to turn to it for advice.

EYE-STRAIN IN HEALTH AND DISEASE. By Ambrose L. Ranney, A. M., M. D., Author of "Lectures on Nervous Diseases;" etc. Illustrated. Phila: New York, Chicago: The F. A. Davis Company. 1897. [Price, $2.00].

The author shows what may be done for the relief of various nervous affections dependent upon eye-strain without the use of drugs, that is by the application of appropriate glasses and the correction of deviations of the eye ball by graduated tenotomies. It is a mooted point among specialists in eye disease how much of a place there is in the therapeutics of the eye for the operations upon the external muscles of that organ: Dr. Ranney is a well known enthusiast upon the value of graduated tenotomies and he fills many pages of his book with cases illustrating their successful use for the relief of headaches, chorea, epilepsy, sleeplessness and other disorders, which by the success of the treatment were proved to be due to eye-strain.

THE MENOPAUSE. By Andrew F. Currier, A. B., M. D. New York: D. Appleton and Company. 1897.

This is a remarkably interesting treatise upon a subject but scantily dealt with by writers upon general medicine. The author has taken great pains to make a thorough study of the topic and his conclusions are arrived at by logical methods of reasoning. He shows, what many medical men have long suspected, that the climacteric is not of itself a cause of disease and that normally it passes by without observable effect; the reason why it has been given so bad a name is that latent disease often takes that time to come to the surface.

MISCELLANY.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION.

The sixth annual meeting of the Southern Minnesota Medical Association will be held at Winona, Minn., August 5, 1897. The following program has been arranged for the meeting and all are cordially invited to attend:

President's Address.—Dr. N. S. Teft, Plainview.

"Appendicitis."—Dr. R. N. Jackson, Faribault.

"Concerning the Modern Hospital."—Dr. Franklin Staples, Winona.

"Reflex Neuroses."—Dr. A. S. Adams, Rochester.

"Puerperal Eclampsia."—Dr. Chas. Hill, Pine Island.

Subject not announced.—Dr. D. B. Pritchard, Winona.

"Erysipelas."—Dr. L. G. Munger, Winona.

"On the Liver."—Dr. A. W. Stinchfield, Rochester.

Discussion of Salpingitis.—

"Its Etiology and Prognosis."—Dr. H. H. Witherstine, Rochester.

"Its Complications."—Dr. W. J. Mayo, Rochester.

H. H. Witherstine, Secretary.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The next meeting of the Mississippi Valley Medical Association will be held in Louisville on October 5, 6, 7 and 8, 1897.

All railroads will offer reduced rates.

The President, Dr. Thos. Hunt Stucky, and the Chairman of the Committee of Arrangements, Dr. H. Horace Grant, promise that the meeting will be the most successful in the history of the Association, and this promise is warranted by the well-known hospitality of Louisville and Kentucky doctors. Titles of papers should be sent to the Secretary.

Dr. H. W. Loeb,
3559 Olive Street, St. Louis.

EXAMINATION FOR THE ARMY MEDICAL CORPS.

An Army Medical Board will be in session at Washington City, D. C., during October, 1897, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before September 1, 1897, for the necessary invitation, giving the date and place of birth, the place and state of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The candidate must be between 22 and 29 years of age, and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the Board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning November 1, 1897.

Further information regarding the examinations may be obtained by addressing the Surgeon General, U. S. Army, Washington, D. C.

Geo. M. Sternberg,
Surgeon General, U. S. Army.

Gossmann does not find that the nephritis of pregnancy necessarily ends in chronic nephritis. He saw it recur in one patient during eight pregnancies, but she is still free from kidney symptoms when not pregnant. He finds that induction of labor by means of vaginal douches is perfectly simple, and in two cases this means alone proved sufficient. In one of them the child was saved and reared.

"About Children" is the title of a book soon to be issued by the Medical Gazette Publishing Company. The author is Dr. Samuel W. Kelly, Professor of Diseases of Children in the Cleveland College of Physicians and Surgeons. The little volume comprises six lectures delivered before the nurses in the Training School of the Cleveland General Hospital, and is filled with material of interest not only to nurses but medical students and practitioners as well. Advance orders will be filled in September.

NOTES.

PHYSICIAN WANTED.

A physician, Scandinavian preferred, is wanted at Harris, Minn. Information may be had of Stark & Savage, proprietors of the Harris Drug Store.

OPHTHALMIA NEONATORUM.

Dr. E. F. West of San Francisco, Cal. writes: "I have used Palpebrine with excellent results in Opthalmia Neonatorum of several types. Cleansing the eyes with a 25 per cent. solution every half hour. A few drops of full strength applied four times a day."

"For the many cases of rheumatism and neuralgia which I am called upon to treat, I invariably prescribe Tongaline and always secure good results. I consider Tongaline the best eliminative in my armamentarium, and whenever I find a gouty or rheumatic diathesis, no matter what is the immediate trouble, Tongaline forms the basis for treatment. I also prescribe Tongaline for la grippe, nervous headache, lumbago and in some cases of pharyngitis and pleurisy.

In fact I consider Tongaline the most serviceable and efficient remedy within my knowledge for the class of troubles for which it is intended."

John E. Brooking, M. D.,
Hallowell, Maine.

IT HAS NO RIVAL.

At the meeting of the American Medical Association, held at Washington, D. C., Dr. John H. McIntyre reported "Ten Selected Cases of Laparotomy, with remarks." From this paper, published in the *Journal of the American Medical Aseociation*, we quote as follows:

"I use but little opium or morphia, for the reason that these drugs, by locking up the secretions, limit the power of elimination, and therefore favor septicæmia. For over a year, in cases of laparotomy where pain and rise of temperature were present, I have used antikamnia in ten-grain doses, with the happiest effects."

A further objection to opium and its derivatives is referred to in an article by Dr. Herman D. Marcus, resident physician, Philadelphia Hospital (Blockley), published in *Gaillard's Medical Journal*, from which we quote: "There is probably no group of diseases in which pain is such a prominent and persistent symptom as uterine or ovarian disorders, and in no class of cases have I been more convinced of the value of antikamnia than in the treatment of such affections. An obstacle in the use of morphia is the reluctance with which some patients take this drug, fearing subsequent habit. Antikamnia causes no habit, and I have never found a patient refuse to take it."

IMPERIAL GRANUM.

The following letter just received by the Imperial Granum Company from the publisher of one of the most influential of American medical journals, must certainly be most satisfactory to the manufacturers of that sterling food preparation:

"Beginning with the grip, I ended up with a severe attack of gastric fever. This gave me an excellent opportunity to test Imperial Granum, and I assure you it was a great pleasure to have something that was at once so pleasant to the taste, so nourishing and so grateful to a delicate stomach. After being compelled to abstain from food for three or four days, I partook of the Imperial Granum quite freely, without the least disturbance of the stomach. As we have had much experience in dealing with delicate and sensitive stomachs, we thought it very remarkable that any food should prove so nourishing and yet could be taken so freely under such circumstances. I was glad to have such an opportunity to test your food, and I shall always be glad to recommended it."

Dr. Golling, Bedford, O.: Used "Sander & Sons' Eucalyptol" with a patient who had three fingers crushed by a saw-log; the fingers healed remarkably fast. I further use it in pharyngitis, with steam atomizer, with best results.

TONGALINE.

"This product of pharmacy has developed, therapeutically, into lines of pathology which have not been suggested in the original manifesto, as given out by its authors. We have received reports of its satisfactory employment in two very important cases—one of chronic catarrh, by insufflation, and another in the excitement of nerve function in paresis. The latter case was very striking, seeming to respond promptly to the internal administration of the remedy. We look for great results from this preparation in the near future."—*St. Louis Clinique*, March, 1897.

IMPERIAL GRANUM.

This standard prepared food for invalids and children has won the enviable distinction of having successfully stood the crucial test of years of actual clinical experience in private practice, sanitariums and hospitals, while numerous competing preparations have appeared and disappeared,—often so completely that even their names are forgotten. The Imperial Granum, however, enjoys so universally the confidence of physicians that its merits are beyond dispute. Moreover, the decision of its manufacturers not to publicly advertise it has secured for it the endorsement of even the most ethical members of the medical profession, who dislike to prescribe any article advertised broadcast to the people and profession alike. Physicians can obtain sample packages free, charges prepaid, on application to the Imperial Granum Co., New Haven, Conn., or John Carle & Sons, New York City.

GLYCO-THYMOLINE (KRESS) IN A CASE OF FOLLICULAR TONSILLITIS.

By O. W. Mayer, M. D.

Hamilton, Ohio.

M. K., 15 years old, came to my office and had a fully developed case of Follicular Tonsillitis, both sides being involved by the inflammation. Placed him on constitutional treatment for the fever and on Glyco-Thymoline (Kress) as a local treatment, by swabbing the affected part with one-half strength solution, and ordering him to use a spray (¼ strength) every one or two hours. The next day, to my great surprise, all the inflammation and the white patches had disappeared. The spray was ordered continued three times a day. In three days the case was all well and sound. Have treated three cases since that time with uniformly good results.

April 10, 1897.

PAIN AND ITS THERAPEUSIS.

Dr. S. V. Clevenger, after pointing out the disadvantages of various analgesic drugs, states that lactophenin is destined to supersede largely the entire array of analgesics proper, owing to its non-toxic peculiarities and the feeling of comfort described by many physicians as following its use. It affords the best results with the least ill effects. Its range of incompatibility is less than other synthetic compounds, and it may be combined with caffeine, quinine and salicylic acid. The minimum dose of 5 to 10 grains may be increased until a daily maximum of 45 grains has been reached. It is but slightly soluble in water, although acting promptly, so that it can be given dry, and be washed down with a drink of water. A dose of 15 grains usually acts as a feeble hypnotic. There are no untoward symptoms following its use, and contrary to the experience with some synthetic drugs, the pulse becomes fuller and stronger under its use. The range of application is extensive, and the testimony of the author is in corroboration of the findings of other physicians as to its superior analgesic effects, its safety and promptness of action.—R. W. Wilcox, M. D., in *American Journal of the Medical Sciences*, May, 1897, quoting from *Journal of the American Medical Association*, 1897, No. 5, page 173.

THE ATLANTIC MONTHLY FOR JULY 1897.

The Making of the Nation. *What is Americanism? A sketch of the growth and development of American national feeling—the various stages through which it has passed, and the great events that have contributed to it; whither the national spirit tends.*	Woodrow Wilson, *Of Princeton University.*
John Sterling and the Sterling and Emerson Correspondence. *Unpublished Letters of the greatest interest, together with a sketch of Sterling, whose cheerful and heroic spirit is shown in his letters to his American friend; a very notable correspondence.*	Edward Waldo Emerson.
The Decline of Legislatures. *After tracing the development of legislatures, Mr. Godkin shows how in all parts of the world there has been a startling decline in their character, except in Great Britain; the reasons for this deterioration; the loss of dignity and effectiveness of Legislatures in the United States; the seriousness of the problem presented by their decline and a consideration of remedies.*	E. L. Godkin.
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ORIGINAL ARTICLES.

STATE MEDICINE IN MINNESOTA—A BRIEF STATEMENT.*

By Franklin Staples, M. D.

Winona, Minn.

A definition of State Medicine is no longer necessary; its province is now well understood; its importance increases with the advance of science, and the extent of its dominion is measured by the bounds of civilization. In our country, composed as it is of a confederation of States, it has been in the natural order for each member of the Union to construct its own laws to meet its local necessities. It is believed, however, that a national head government would strengthen the system, and not interfere with State control.

As early as the year 1855, because of the frequent invasions of yellow fever in the city of New Orleans, the legislature of Louisiana established a State Board of Health, whose duty was to maintain a quarantine and have some control of the sanitation of that city. This was the first named as a Board of Health in this country. It had not the full equipment and province of State boards as now organized, but it served the purpose at the time. The city of New Orleans had suffered from the scourge of yellow fever for two years. The report of the Board of Health Commission, appointed in 1854, aroused public attention and interest. Not only in this city and state has the coming of pestilence been the means of future good and safety to the people. It was the unsanitary condition of the workshops and homes and the high death rate of the laboring population of England, that led the barrister, Edwin Chadwick, to make his report to Parliament on the health of towns in 1842. This report has become historic. It was the beginning of things in State Medicine, not only for England but for the world.

The beginning of State Medicine in this country was in the State of Massachusetts in 1849, when provision was made by the legislature for a sanitary survey of the State. After twenty years of investigation and what seemed to be unavoidable delay, the Massachusetts State Board of Health was formed and began its work in 1869. The movement here resulted from a general conviction among philanthropists and economists, that prevention of disease and death is a means of promoting the welfare and happiness of the people, and that the cost of prevention is less than that of cure. Good men in California, some of whom were from the sanitary school of Massachusetts, organized the State Board of Health for that State in 1872.

The State Board of Minnesota was organized and began work in 1872. This seems to have been a year of general advance; the American Public Health Association was organized the same year. This association now has for its territory the United States, the Dominion of Canada and the Republic of Mexico. Its membership includes the leading sanitarians of these countries, and its published literature covers the field of modern public hygiene and State medicine. Dr. Chas. N. Hewitt was the first secretary of the Minnesota Board, and continued his important work for the State for almost twenty-five years, until January, 1897. Dr. Hewitt, of Minnesota, the late Drs. John H. Rauch of Illinois, Henry I. Bowditch of Massachusetts, Elisha Harris of New York, Ezra M. Hunt of New Jersey, and a few other men yet in active work in their respective States, have been known as the leading sanitarians of the United States during the formative period of the Nation's State Medicine.

The work of the State Board of Minnesota is done in three sections or departments, viz.: the general department of State Medicine, the department of Vital Statistics, and the department of Diseases of Animals. Each department has its own appropriation, and its accounts are kept distinct in the office of the Board.

The laws governing the State Board and its dependencies throughout the State are quite complete, and have been revised to meet the late discoveries in sanitary science and the increased demands for sanitary work in the public service. Chapter 132, Minnesota Laws of 1883, has been adopted as a whole or in part in the sanitary codes of many other states. With its revisions to the present time, it is the authority and affords the direction for all that is now done in the domain of State Medicine in Minnesota. An idea of the extent of the work in the State is given in the following statement: Minnesota in 1896 had 1,804 local boards of health; 40 in cities, 355 in villages and 1,409 in townships. In townships where special health boards have not been created the law makes the town commissioners the board of health. These local boards report vital statistics and anything notable in disease prevalence to the State Board monthly and receive its direction.

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*Read in the Section of Public Health, Minnesota State Medical Society, June 16, 1897.

State, city and township organizations, practically like this in Minnesota, exist in many other states in the Union. The importance of complete State and local organization appears in the following, which was given in recent writing: "Interstate and sea-coast notification is now an important means of protection from the importation of contagious diseases. This is possible only by co-operation between seaboard quarantine and State organization. To illustrate: A steamer arrives with immigrants, is inspected and passes quarantine at New York. No cases of contagious disease are found on board, but the vessel is from an infected port, and certain passengers are supposed to have been exposed to contagion. The New York quarantine telegraphs the Secretary of the State Board of Minnesota, for instance, that suspected immigrants have left the ship and are on their way to such a town in the State. The health officer of this town is notified and his inspector is on the lookout."

Recent great discoveries in bacteriology have made possible a kind of work not before known. Notwithstanding the fact that, as ever, certain uninformed persons have allowed their insignificant weight to rest upon the back side of the wheel of progress, and certain "isms" and "pathies," the remains of mediaeval ignorance and superstition, have continued to maintain a lingering existence even in modern times, and to exert their feeble opposition to science; yet the march of progress has been continually onward, and today the vantage ground is higher and greater than ever before. For several years the State of Minnesota, in its department of Public Health, has made a study of bacteriology in relation to preventable disease both in man and in animals; has furnished its own pure vaccine, and the material for rendering the body immune to diseases other than small-pox. To-day, in common with a few other states, it maintains a well furnished bacteriological laboratory and employs a skilled bacteriologist in the work of this important and constantly increasing department of preventive medicine.

The department of diseases of animals in this great producing State of Minnesota, has come to be of great importance in an economical and financial point of view, aside from its connection with the diseases of man. The Board of Health has made and continues to make this a distinct department of its work. Inspection is made of animals imported for slaughter in the State, and an expert veterinarian has the work of instructing producers concerning the care of stock and the prevention of disease.

A study of the vital statistics of a State or country has been the best means of determining its sanitary defects. An account of the death-rate and death-causes in the different years affords an indication as to the extent and direction of preventive measures. Accuracy and a degree of completeness in collection are required to render any statistics valuable. An act to provide for the collection of vital statistics passed by the legislature of Minnesota in 1887, gave the control of the vital statistics to the State Board of Health, and provided for their collection by local health officers and town clerks throughout the State. Under the direction of the Secretary of the State Board, and through the very complete co-operation of local boards, the statistics as collected have come to be of great value to the State. They are collected and tabulated in the office of the State Board, the data of different years are compared, and practical lessons are drawn therefrom. Biennial reports are made, which constitute an important part of the State Board's general report to the legislature.

The economical advantage to the State of authorized and systematic sanitary service is recognized in Minnesota, as it is in other states and countries, and the people are willing to join with the medical profession in favoring its support.

It is in the late history of this country that State Medicine has been an important factor in the advance of the standard of medical education. A medical diploma and the state authority for the practice of medicine have come to have a recognized value, and the sanitarians and teachers of medicine in Minnesota have together taken a worthy part in the work of this advancement.

IMBECILITY AS AN ELEMENT IN INSANITY.*

By R. M. Phelps, M. D.

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Rochester, Minn.

During the past few years I have been forcibly impressed by the large number of youthful cases admitted, these cases having usually the characteristics of feebleness of mind reaching back indefinitely toward childhood with a history indicating a slow, progressive, degenerative change. The phrase "high grade imbecility" seems to me after much reflection to be the best name describing these cases, even while we admit, of course, that they are rarely so named in current literature. In fact, I believe there is still a very slight recognition of the large extent to which the characteristics of imbecility invade, or interweave with, the characteristics of insanity. This idea we have previously brought forward in a report classifying one year's admissions, published in the December number of the "Journal of Nervous and Mental Diseases," 1895; also a classification of the next year's cases in a similar manner in a paper presented to this Association six months ago. Moreover, H. A. Tomlinson, Superintendent of the St. Peter State Hospital, in the hospital report of last year brings out with strong emphasis a similar thought, although in an entirely different manner and connection.

We might name the characteristics of imbecility as follows:

1st. An imperfect mental development.

2nd. An appearance or recognition in childhood or early life.

3d. Slowness, weakness, dullness; or irregular and unbalanced brightness of mind with few if any delusions.

4th. Progressiveness either very slow or absent. (The physical stigmata are not here included, because used by us as corroborative rather than as diagnostic evidences.)

In contra-distinction to the above, insanity has as its characteristics:

1. Previous full mental development.
2. No appearance till about time of attack.
3. Delusions and hallucinations prominent tending toward delirium or incoherence.
4. A rapid invasion. (An acute attack or disease, as distinguished from a "defect.")

The point we wish to impress is that the characteristics named in the first group are found to be very prominent in admissions to our hospitals for insane. Of course but few of the cases are "typically" imbecile, for as a general rule such ones go to the School for Imbeciles, but the modified forms of the type are many, grading down and out in a series of cases till they are lost sight of in those cases which have a large overbalancing of the group of characteristics distinguishing insanity.

For the purpose of bringing out some of the details demonstrative of this thought, I will use the cases admitted during the last official year in the Rochester State Hospital, arbitrarily separating them into classes. We find that of 222 cases admitted as insane, 7 cases are quite accurately denominated as "imbeciles"; that is, they could easily secure admission to the school for imbeciles. These constitute the first class to be named. In only one of these seven cases was there anything like an acute attack, and she, coming to us from the Reform School, was quite evidently imbecile, and the maniacal paroxysm was only a superimposed affair. The ages vary greatly. Two of them were over forty on admission, yet had so evidently been imbecile that it was so admitted by relatives.

Beyond these cases, so evidently imbecile (marked as medium-grade imbeciles in my tabulation), we named a second series of cases (tabulated as third grade imbeciles). While these are rather more vaguely imbecile than the former, they are yet quite clearly entitled to the name. Of these we number fourteen admissions. Of these fourteen cases there was an "attack" in the sense of an onset of active symptoms in only five cases. In each case, by diligent inquiry, it was found that defectiveness of some kind reached way back indefinitely through the teens. In only one case was there considerable mental activity or brightness. This young girl was extra good as a musician, intelligent and active in appearance, but her history showed that she had been very silly and peculiarly forward in her relations to men for many years. This gradually grew more prominent,, until at the age of twenty she dropped rather suddenly into a melancholia, which six months later became a tipsy, mildly maniacal state, and now, a year later still, she is comparatively quiet, but mildly demented. Most of the cases of this class, however, have been monotonously dull, and only occasionally are they better named as "erratic" or "defective." This defect extends backward for an indefinite period and they are only admitted here finally because of some accumulation of offenses or some slight increase in defective behavior. In ages two of these people are over fifty, and senile symptoms mingle with those of imbecility. Three are between forty and fifty, five are between thirty and forty.

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As a third class, however, following out this same line of thought, we would name the so-called "adolescent" or "developmental" cases. Of these there were admitted fifty-one. It is this class especially which adds numbers to our list and enforces our argument. They have been rarely called imbecile, yet it is our contention that they are hardly more than half way along the changing grade from imbecility toward insanity. These cases in age are usually below thirty and their history shows the mental trouble to date back usually into the teens, sometimes through them. They seem to show clearly a strong defective inheritance, not sufficient to show itself at birth or in early childhood, but gradually creeping into prominence in the adolescent stage. They are apt to show approximately the mental failure of imbecility, though occasionally vacillating brightness. In the latter case "eccentricity," "hysterical behavior," the words "cracked" or "crank" may have been the names applied. In a few cases they nearly deserve the name "paranoiac."

Only fourteen of these fifty-one cases show any sudden excitement or depression entitling them to be called acute, and in most of these fourteen cases previous attacks or previous history of defectiveness take away the acute character. While delusions are of course more prominent in this third than in the two preceding classes, yet they are rather few and subordinate, especially in the early years of the trouble. There is a slow progressiveness, with, however, many vacillating changes. Of these cases four are over forty years of age, eleven are between thirty and forty, five are under twenty, the remainder being between twenty and thirty. It is to be noted that they average younger than the more purely imbecile admissions. The reason for this is that the pure imbecility is more quiet and symmetrical, while the progressiveness of the adolescent, though slow, brings changes and at times very troublesome behavior.

But even this is not all; there are among the same admissions also five epileptics, in four of whom the epilepsy dates back into the teens. Their mental state is markedly of imbecile type. There are also twelve paranoiacs, in ten of whom the history, though vague, indicates a defectiveness extending back an indefinite number of years. Often these have been recognized as defectives the most of their lives. Finally, among the chronic cases, dements and alcoholics, we can select seven more of vaguely defective type.

We have thus enumerated 86 cases out of 222 consecutive admissions in which the mental trouble is a defectiveness dating back indefinitely through or into their teens, which mental trouble has no well defined beginning but is a part or outgrowth of inherited character which even after hospital admission has in many cases no delusions or hallucinations but only a symmetrical weakness.

This analysis of actual cases substantiates our thesis. Of course all insanity in last analysis might be construed as a species of defectiveness, but in this paper we refer only to easily recognizable cases. The prognosis of all these cases is bad. Some apparently fair recoveries indeed occur among the adolescent, but the indication is quite uniformly of so strong a natural predisposition as to almost insure a slow, downward progress. The recoveries are almost never for life.

The general prognosis of insanity as a whole is still further darkened by pushing the analyses and finding that the total of 222 included 33 seniles, 10 general paretics, 4 of other organic brain disease, two more paranoiacs, 23 dements or chronics and some miscellaneous cases, all thoroughly incurable. Only 48 were denominated "curable" (not counting an occasional case among the adolescents). Not all of the 48 were "hopeful," for, upon scanning the list, we find that five had previous attacks, three were evidently mildly demented and one was a case of acute delirium. It might be mentioned also that among these 48, 8 cases of mania-a-potu formed the most hopeful class, everyone having recovered with fair perfection.

As conclusions we might briefly state as follows:

1st. Both pure insanity and pure imbecility are for the most part existent as ideals, as types; cases grade toward one another in a sufficiently extended series and their characteristics interweave inextricably. Defectiveness will not separate itself perfectly from insanity.

2d. The proportion of the characteristics of imbecility found among the insane is much larger than is usually noted. The history accompanying rarely calls attention to it. Persistent inquiry is necessary to bring it out, for parents themselves will often deny defects most apparent to us.

3d. The analysis of one year's actual admissions to this hospital (in this state there is no selection of cases, no private asylum and no private or pay cases) fully justifies the above generalizations, and in fact is the basis for them.

THE TREATMENT OF POSTERIOR DISPLACEMENTS OF THE UTERUS.*

By W. J. Mayo, M. D.

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Rochester, Minn.

Backward displacements of the uterus are exceedingly common, and every practitioner, whether engaged in gynaecological work or not, has occasionally cases to treat or to advise as to treatment. The general practitioner is the one who is consulted first, as a rule, and on his good judgment the future condition of the patient will largely depend. I think it well, therefore, for us to occasionally discuss these topics of mutual interest from different standpoints, for the purpose of arriving at some definite conclusions as to the proper course to pursue. From a general surgeon's point of view, it would seem to me that the genital organs of woman had suffered from an excess of operative zeal, to her detriment and our discredit.

I feel confident that there are a large number of women whose uteri are displaced backward, in whom there are neither local nor general symptoms which demand relief. I am willing to admit that posterior displacement is not a normal condition, yet if the uterus is not enlarged or inflamed, causes no pain and does not interfere with comfort, it is a great question whether any treatment is indicated or not.

In a general way backward displacements of the uterus can be divided into four groups: First, retroversion; second, retroflexion; third, either of the foregoing associated with prolapse; fourth, retrocession, an important group in which the uterus is carried backward as a whole by a shortening of the utero-sacral ligaments, a condition described by Jarman. Clinically, the most important distinction is as to the movability of the uterus. In retroversions which are adherent with associated disease of the ovaries and tubes and pelvic peritoneum, the displacement may be considered only a small part of the pathological condition and a sequel of the former disease. In such cases treatment directed to the ovarian and tubal disease will be more rational than efforts at overcoming the retroversion.

Gill Wylie for years has contended that it was not the malposition, but the accompanying inflammation, which caused the symptoms; this, however, begs the question, as the retroposition is a cause of the chronic congestion which permits the infections and their results. Munde remarks that movable posterior displacements in single women often cause no trouble as long as the women remain unmarried, and it is no doubt true that these displacements are less important in virgins than in married women, for obvious reasons. If married, sterility may result from this condition without other symptoms. Women with retroversions who have passed the menopause rarely require treatment, as the uterus is too small to seriously interfere with the functions of other organs, no matter what its position. If senile endometritis exists, however, the displacement will require attention.

LOCAL TREATMENT.

In subinvolutions with retroversion, local applications and glycerine tampons applied in Sims position are a valuable means of treatment, and if begun sufficiently early the displacement may be cured by relieving the congestion and supporting the over-stretched ligaments. My own experience has been that subinvolution, with resulting displacement, is very common after abortion, and also more common in women who fail to nurse their children. We have all noticed the lactation involution of the nursing mother, in which the uterus is even smaller than normal and less liable to become displaced.

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In acute retroversions such as are seen after traumatisms or in those due to the muscular relaxation of prolonged illness, such treatment is usually sufficient to effect a cure. In the pregnant retroverted uterus this method is of the utmost value, and may save an otherwise inevitable abortion.

MECHANICAL AIDS.

In no branch of our art has so much time been spent as in the attempt to support a displaced uterus by mechanical means. The extent and variety of instruments constructed for this purpose is simply appalling, and nothing could more completely demonstrate their futility. The rise and fall of the pessary is one of the curiosities of gynaecological history. A survey of this extensive field would seem to warrant certain conclusions:

First, that all pessaries with an external support should be relegated to the curiosity shop;

Second, that intrauterine stem pessaries are more potent for evil than good;

Third, that soft rubber pessaries are filthy and act as a hot bed for the culture of bacteria, and their value for more than temporary use is dubious.

The Hodge lever pessary, or some of its modifications, as the Albert Smith or Thomas, has stood the test of time, and in certain selected cases of movable retroversions is a valuable adjunct to other treatment. Schultze, of Jena, who has done a great amount of work in this field, thinks that a large percentage will be cured by relieving the inflammation and the fitting of a pessary. Emmett, Thomas and many of the older writers, concur in this opinion. My own belief is that only a small percentage of permanent cures can be expected by this means of treatment. As a temporary support it has great value.

After plastic work on the vagina or cervix, or shortening of the round ligaments, a well fitting pessary to be worn for several months is a wise precaution. Hot douches of plain water should be used frequently while the pessary is in position. If salty substances are dissolved in the douche it may cause a precipitate on the pessary and irritate the vaginal walls. A pessary may be used with comfort and relief to the patient for many years in some cases of chronic retroversion, rendering its wearer good service. Under such circumstances it should be carefully watched and removed occasionally for cleansing purposes. All in all, the pessary can be said to be a necessary evil, occasionally useful, more often useless or harmful. Before leaving this subject, I wish to second Munde in his commendation of the Gehrung pessary as a support to the anterior vaginal wall in the cystocele of aged women, in whom operative relief may not be considered advisable.

PLASTIC WORK ON THE CERVIX AND VAGINA.

The vagina has its fixed point below, with a movable uterus at its upper attachment. Laceration of the pelvic floor permits of downward sagging of the vaginal walls, and the uterus must accompany the descent. In this way a normal uterus may be prolapsed and retroverted. Repair of the pelvic floor by a proper perineorrhaphy, with the introduction of a pessary until the over-stretched ligaments regain their tone, is curative. Lacerations of the cervix or great hypertrophy may keep up constant uterine congestion or inflammation; here trachelorrhaphy, or amputation of the diseased portion of the cervix, is indicated, and as a rule the complete removal of the diseased tissue by free amputation is better than classical cervix repair.

The mere presence of a cervix tear in an otherwise normal uterus does not justify any cervix operation whatever. Curetting is often indicated in these cases, and not only removes diseased endometrium, but, if purulent discharge be present from the uterus, the cleansing is of great value in preventing wound infection of the repaired tissues of the cervix and vagina.

Ochsner, of Chicago, has had excellent success in curing chronic retroversion by amputation of the cervix, hypercorrecting the position of the uterus and then repairing extensively the pelvic floor. The reposition of the uterus by means of a uterine sound or repositor is not good practice. The large majority can be replaced by the bimanual method, or better by the procedure of Kelly, in which with tenaculum forceps caught in the anterior lip of the cervix the uterus is drawn down and straightened, with the finger in the rectum, the fundus is elevated, the cervix is then pushed backward and the bimanual method resorted to for the complete reposition.

ALEXANDER'S OPERATION.

Shortening of the round ligaments introduced by Alexander and associated with his name has had a peculiar history. In the early period it was applied to all forms of retroposition, with many resulting failures. It was then largely abandoned for more radical measures, such as ventro-fixation. The latter operation often caused great difficulty in cases which became pregnant, and with increased experience it was shown that in easily movable uteri the Alexander had stood the test of time, Stocker of Lucerne, Munde and others reporting a large percentage of permanent cures. Difficulty in finding the ligament caused modifications of the original operation. Dudley and Goffe shortened from the inside of the abdomen. Kocher split up the canal, and Frank opened the peritoneum on each side freely. Edibolds applied it to adherent retroversions, first opening the abdomen and liberating the adhesions. With the advent of anterior kolpotomy, Vineberg and Byford began to shorten the round ligaments through the vagina.

Every self-respecting gynaecologist, with few exceptions, has his own methods. I have shortened the round ligaments in more than seventy-five cases, both from within the abdomen and without. My own opinion is that the original method of Alexander is the best operation and gives the desired result with the least manipulation, and with increasing experience I seldom resort to any essential modification of it. It must always be borne in mind that the prerequisite to its performance is a freely movable uterus, and that all sources of drag from below must be relieved by plastic operations. These can be done at the same sitting.

INTRA-ABDOMINAL OPERATIONS FOR RETRO-POSITION.

The ventro-suspension of Kelly is a close competitor of the Alexander operation in any case, and if the uterus is adherent or there is accompanying disease of the ovaries and tubes, it is the best operation with which I am acquainted. Noble reports a large number of ventro-suspensions which became pregnant and no difficulty resulted that could be attributed to the operation. I have performed this operation more than fifty times and have had four cases afterward conceive with natural labors; two of these cases had been married for several years and were previously sterile.

If there be prolapse of the ovaries and tubes, even with a movable uterus, I prefer it to Alexander's. Many times I have loosened adherent ovaries and tubes and by ventro-suspending the uterus, have been able to dispense with castration, with excellent results, the tender ovaries and tubes being drawn up out of harm's way, one case becoming pregnant afterwards. I prefer the exact operation of Kelly, attaching to the peritoneum only with two buried silk sutures. In no case wherein pregnancy is possible should ventro-fixation be performed, as abundant evidence of its harmful effects are recorded, such as abortion, impossible labor, Caesarean section and the like. Complete prolapse in aged women may necessitate a very firm ventro-fixation in addition to plastic work. Ventro-fixation consists in firmly attaching the uterus to the muscular and aponeurotic structures of the abdominal walls; ventro-suspension to the peritoneum only. The result in the latter operation is a slight band of connection which is sufficient to keep the fundus anteverted and the intestines lying against the posterior wall of the uterus hold it in proper place.

Temporary sutures for ventro-suspension may cause unreliable adhesions and lead to future relapse. Many of us have had the experience of opening an abdomen to find everything matted together by adhesions, as in an appendiceal abscess, yet reopening the same abdomen at the end of several months find that all the adhesions had melted away. If silk has been buried at the first operation it will be found thoroughly encapsulated and the adhesions about it still persisting. It is the same with ventro-suspension, the buried silk acting to prevent the absorption of the adhesive band.

Vagino-fixation, like ventro-fixation, has been abandoned in all cases in which pregnancy is possible; the same harmful effects are seen, with additional danger of after difficulty with the bladder. Introduced by Sanger, Mackinrodt and Durhassen, and modified by Doyen, utero-vaginal fixation still remains a bad operation, having nothing in its favor except the possibility of ventral hernia in the abdominal operation. It might be useful in a case in which vaginal section had been done for other purposes and future pregnancy was out of the question.

I will not further mention the many modifications of the abdominal or vaginal operation; they too frequently are a tribute to the industry rather than the discrimination of the inventor. An exception to this might be the use of the urachus by Fowler with which to suspend the uterus, and the posterior kolpotomy of Pryor. After vaginal section for drainage, Pryor's method may be valuable in a small number of cases.

After the ovaries and tubes have been thoroughly removed there can be little benefit in fixing the uterus in the wound. Price, with his great experience, says that after the ablation of both appendages the broad ligaments are hauled taut and retain the uterus permanently in normal position.

The retrocession of Jarman may require division of the utero-sacral ligaments through the vagina for its relief.

DIFFERENTIAL DIAGNOSIS OF OVARIAN CYSTOMA.*

By John H. Rishmiller, M. D.

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Minneapolis.

We wish to present to you the characteristic differential diagnostic points between ovarian cyst and some of the more important maladies which simulate this neoplastic growth in its various phases of development, and frequently baffle the busy practitioner in arriving at a positive diagnosis. For convenience sake, we have adopted Olshausen's division of all tumors into three classes: First, those which are distinctly intrapelvic; second, those which occupy the lower part of the abdomen, and third, those which extend to the epigastric region.

We desire to consider the following pelvic neoplasms in differentiation from ovarian cystoma:

a. Retroflexion or retroversion of the gravid uterus.

b. Extrauterine gestation.

c. Collections of blood (pelvic haematocele).

d. Distended tube (haemato-pyo-and hydrosalpinx).

e. Collections of pus (pelvic abscess).

A. RETROFLEXION OR RETROVERSION OF THE GRAVID UTERUS.

It is hardly imaginable that even the incautious examiner could be culpable of such an egregious blunder as to overlook the history and symptoms of gestation. But if the incarcerated organ does not clearly present the globular and fluctuating swelling, we should by all means examine the patient under an anaesthetic. Then a bimanual examination will reveal without a doubt the absence of the fundus in the usual position and the relation of the cervix to the tumor. The most reliable sign of early pregnancy is the softening of the uterine body above the utero-sacral ligaments.

B. EXTRAUTERINE GESTATION.

The patient will furnish a history that she has been married a number of years and has not become pregnant, or that she has become pregnant and then gone an indefinite time before its recurrence. The clinical data in ectopic foetation are altogether matters of uncertainty and irregularity. The absence of the signs and symptoms of pregnancy are the main points in casting aside the suspicion of an extrauterine gestation. The catamenia may be suppressed or appear regularly for the first months and not afterwards. Then again, at the beginning there may be amenorrhoea and a return in the later months. The periodic colicky pains usually present themselves after the second month, and consist of irregular paroxysms felt in the hypogastrium and in the region of the gestation sac. These symptoms of pain are usually associated with internal hemorrhage and collapse. On bimanual palpation we find less fluctuation than in ovarian cyst. The uterus is smaller than at the corresponding periods of normal gestation, with the fundus pushed upward and forward behind the symphysis, which position is brought about by the frequent development of the fruit sac in Douglas' pouch. The uterus wll present a marked elongation.

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*Read before the Section of Gynæcology of the Minnesota State Medical Society, June 16, 1897.

If a portion of its mucosa be removed by curettage and subjected to microscopic examination, decidual changes will be observed. The expelling of a decidual cast is pathognomonic. In the early weeks the gestation tube may be felt as a rounded, semi-fluctuating projection of one horn of the uterus, and as it enlarges it falls into Douglas' pouch. After rupture we find a boggy mass behind the uterus or in the broad ligament. I have a case of the latter description at present under my care where rupture occurred at the end of the third month into the left broad ligament. The foetal debris and haematocele almost entirely stripped the peritoneum out of the left side of the pelvis and crowded the uterus towards the right. The later stages of ectopic gestation are easily differentiated from ovarian cyst by the simple appreciation of the normal signs of pregnancy.

C. COLLECTIONS OF BLOOD.

It must be remembered that the first symptoms of a pelvic haematocele are very similar to those of rupture of an extrauterine foetation, for, in my estimation, the latter is most frequently due to the former. We have the sudden appearance of excruciating pains due to the burrowing of the blood accompanied by signs of shock, collapse and hemorrhage. On bimanual examination we find at first the tumor exquisitely sensitive, soft and fluctuating, while the uterus is movable; later the sensitiveness disappears, the tumor becomes hard and dense from the absorption of the fluid constituents, and the uterus is firmly anchored, as the sequela of one or more attacks of pelvic peritonitis. All these symptoms are absent in ovarian cyst, and the tersest manner of arriving at a differential diagnosis is by critically studying the clinical history, for the reason that a chronic pelvic haematocele may present all the physical signs of an ovarian cystoma.

D. DISTENDED TUBE.

For the reason that it is difficult to differentiate between hydro—haemato—and pyo-salpinx, I wish to briefly reflect on these lesions conjointly, as a distended tube in differentiation from the subject matter under discussion. In a distended tube we have a history of acute inflammation, with a great deal of pain, while in ovarian cyst these signs are absent. On bimanual examination the hands can grasp a small, pear-shaped body on the side of the uterus, to which it is attached by a slender pedicle, while in ovarian cyst the tumor is more oval and less intimately connected with the uterus. The one is usually higher in the pelvis and less movable, while the other is lower and more movable. In a distended tube we may have at intervals a discharge of fluid per vaginam.

Where an ovarian cyst is completely imbedded in an inflammatory exudate it requires the greatest perseverance and mental discipline to arrive at an unhesitating diagnosis. Such a case has come under the writer's observation at St. Mary's Hospital, where operation proved the condition of the existing pathology.

E. COLLECTIONS OF PUS.

Pelvic abscess has recently been so exhaustively studied by all who are interested in pelvic surgery that I will pass this over by simply giving it this brief mention:

Adhering to Olshausen's classification of abdominal tumors, we find in the second division, or those tumors which occupy the space between the pelvic brim and the umbilicus, a tympanitic note on percussion between their superior border and the lower ribs. Another fundamental division is whether the neoplasm grows from below upward or from above downward. If downward, we shall have a tympanitic zone of resonance between their lower borders and the pelvic brim, and vice versa. A further subdivision may be carried in mind by observing whether the tumor originates from tissues or organs located in the lateral or median part of the abdomen. For deliberation of the abdominal tumors I wish to call your attention to the following:

a. Ascites.
b. Encysted ascitic fluid.
c. Tuberculosis of the peritoneum.
d. Gestation.
e. Fibroma of the uterus.
f. Fibro-cystoma of the uterus.
g. Distended bladder.
h. Phantom tumor.

A. ASCITES.

Ovarian cystoma is most frequently confounded with hydroperitoneum. In abdominal ascites the enlargement is uniform, flat in front, commences in the most dependent part, and the dullness on percussion changes with the decubitus of the patient, while in ovarian cyst the enlargement begins unilaterally in the iliac fossa, grows obliquely upward, is prominent in front and is not changed by the position of the patient. In advanced development the ovarian cyst is centrally placed and gives a circumscribed dullness in front, while in ascites there is a marked bulging laterally and a diffuse dullness in the flanks and a tympanitic percussion note in the region of the umbilicus. In hydro-peritoneum we have a prominent and thinned navel, floating ribs not bulging, bimanual recto-vaginal examination detects a distinct wave of fluctuation and a uterus of normal position, size and mobility, while in ovarian cystoma we have a conical chest from the bulging of the false ribs, navel not thinned, fluctuation per vaginam less distinct or not recognizable, and the uterus is apt either to be retroverted or drawn upwards. The motion imparted to the cyst on deep inspiration is wanting in ascites. In the former we have the characteristic facial emaciation which presents such a graphic contrast to the full, leaden and puffy face of hydroperitoneum. In ascites we have a tense and shining skin with enlargement of the superficial abdominal veins and oedema ot the extremities and lower abdomen.

B. ENCYSTED ASCITIC FLUID.

Is an extremely rare affection, and when encountered it is generally mistaken for an ovarian cyst. We have a clinical history of slow growth and localized pain, with acute peritonitis. Its boundaries are usually ill-defined and restricted among the intestinal adhesions. The tumor is usually located in the middle and front of the abdomen, with the intestines behind. A change in the decubitus of the patient does not present any variation in the percussion note, which is dull in front and resonant on the flanks. Fluctuation is limited and the abdomen is not nearly as prominent as in ovarian cystoma. Vaginal examination is negative.

C. TUBERCULOSIS OF THE PERITONEUM.

In fully one-third of the reported coeliotomies in tuberculous peritonitis the diagnosis of ovarian cystoma has been made. The physical examination counts for very little, but the most suggestive points are the clinical history and the evidence of old tuberculous lesions. The condition of the Fallopian tubes, the lungs and the pleura should be carefully examined and the detection of any dieased affection of these viscera, together with an ill-defined, anomalous mass in the abdominal cavity should lead us to suspect its presence.

D. GESTATION.

Ovarian neoplasms commonly cause sterility, but do not actually exclude pregnancy. We should, therefore, abstain from using the sound and await the conclusion of a future examination. In a month hence the ballottement, foetal heart and quickening will give the necessary facts for making the distinction. Ovarian cystomata, in their early stages of development, occupy either side of the pelvis and can hardly be mistaken for the median placed and pregnant uterus. But the history of ovariotomy shows that in advanced gestation, complicated by an ovarian cyst, the cystic growth has been overlooked, inasmuch as it was not even suspected. In hydramnios if the proper significance is not attached to the cardinal symptoms of pregnancy, it may easily lead the surgeon to a mistaken diagnosis. I will briefly recall the symptoms of contrast between these two conditions. In ovarian cystoma we have a gradual and asymmetrical enlargement, while in pregnancy it is more rapid and symmetrical. In the one the features are emaciated and anxious, conical chest, menstruation present, superficial veins of the abdomen enlarged, oedema of the ankles in the late stages and fluctuation very distinct, while in the other the features are natural and healthy, chest not conical, menstruation absent, veins of the abdomen not enlarged, oedema of the ankles not uncommon after the seventh month, and fluctuation not very prominent. In pregnancy, on bimanual palpation, contraction of the uterus may be excited and apparent softening and shortening of the cervix may be detected. Pregnancy may be excluded by the detection of the normal sized and unimpregnated uterus.

E. FIBROMA OE THE UTERUS.

Small pelvic tumors, with a hard, nodular and movable mass, intimately connected with the uterus, with symptoms of irregular discharges of bloody and watery fluids, should lead us to suspect a growth of a fibrous nature. Small pelvic fibromata are more difficult to diagnose than abdominal ones. A pedunculated fibroma is extremely difficult to differentiate from an ovarian cyst, for the reason that the uterus is not enlarged and metrorrhagia is usually absent. Fluctuation would be pathognomonic, but suppose we have an oedematous fibroma or a multilocular cyst with innumerable small areolar cavities, then nothing short of an anaesthetic will clear up the diagnosis.

The fibroma develops very slowly and the ovarian cyst rapidly. In the one the abdomen is asymmetrical, menorrhagia or metrorrhagia frequent, surface lobulated, hard and firm, elasticity marked, but no fluctuation detectable, the uterus moves with the neoplasm and the uterine cavity is elongated; in the other the abdomen is symmetrical, amenorrhoea the rule, surface smooth and yielding, fluctuation unmistakable, uterus moves independently of the tumor and its cavity is not elongated. In fibroid tumors the abdominal veins are not enlarged and the excretion of the kidneys is normal, while in ovarian cystomata the superficial veins are distinctly prominent, especially in the multilocular variety, and there is noticeable inactivity of the kidneys. On the one hand we have the healthy facial expression; on the other the characteristic facies ovariana. On bimanual examination in the case of fibroma we find an elastic and firm tumor coincident with a large and heavy uterus, while in the case of an ovarian cyst we can distinctly detect the independent mobility of the uterus and the fluctuation and compression of the cystoma.

F. FIBRO-CYSTOMA OF THE UTERUS

Is relatively infrequent and occurs usually in women over thirty years of age. The growth is slow at first, but rapid after attaining a certain size. Menorrhagia is seldom present. In fibrocystoma we have a lobulated condition which can be felt through the abdominal parietes, umbilicus not prominent, uterus moves with the tumor and the uterine cavity is generally elongated, while in ovarian cyst we have no lobulation, except in polycysts, the umbilicus is prominent, the uterus moves independently of the tumor and its cavity is not elongated. The detection of hard nodules would be significant, but hard and tense cysts may impart the same sensation. Fluctuation is very hard to detect, for the reason that the tumor gives rather an elastic feel.

The writer saw a case of this description in consultation last winter where it was impossible to make a positive diagnosis. Operation revealed the true nature of a multilocular cyst with innumerable areolar cavities filled with fluids of different densities and constituents. Some of the cavities were so tensely filled with colloid matter that they gave the sensation on palpation of a nidus of soft fibroids with some of cystic degeneration. Fluctuation was not detectable and the diagnosis was a disputed question until disclosed on the operating table.

In pedunculated cystic fibroma the uterus moves independently of the tumor and its cavity is not enlarged.

G. DISTENDED BLADDER.

It is hardly possible that a distended bladder could be mistaken for an ovarian tumor, but such errors have happened, even with men of expert diagnostic skill. When the bladder is over-distended the urine usually dribbles away constantly or passes in spurts when the patient moves. Mistakes are most liable to happen where retention is due to the pressure of a pelvic neoplasm, and in all critical examinations of the pelvic organs the inserting of an aseptic catheter is by no means superfluous.

H. PHANTOM TUMOR

Is a great rarity, but of late years more frequent than formerly. They are found among women who have uncontrollable imaginative faculties such as the excessively nervous and hysterical. Percussion over the tumor will give a pneumatic resonance. An anaesthetic will relax the abdominal muscles, when the supposed neoplasm will entirely disappear and reveal the mystery.

In conclusion, the limitation of time forbids my considering the other twenty-five or so enlargements which may take place in the abdominal cavity and be mistaken for an ovarian neoplasm, or vice versa.

SOME OF THE MINOR AILMENTS OF THE STOMACH AND THEIR REMEDIES.*

By J. W. Andrews, M. D.

Mankato, Minn.

I have been a member of the Minnesota Valley Medical Society for the last fourteen years, and I believe have failed to attend but one meeting during that time, and that was by reason of sickness in my own family. I have heard numerous papers on the technique of abdominal surgery, on appendicitis, hysterectomy and other major operations discussed, but although this Society is largely made up of general practitioners, I do not believe there has ever been read in any of its sessions a paper on any disease of the stomach. I think all general practitioners here present will bear me out in saying, that from 40 to 50 per cent. of the patients that consult us in office practice do it for some ailment of this important organ. It may not be that they come to us directly for that purpose, but upon examination we find that what they complain of is referable to some disorder of the stomach, it may be for headache (and seventy-five per cent. of cephalalgia is not due to errors of refraction as the oculist would have us believe), it may be for urticaria, or on account of phosphatic urine which has attracted their attention by the large amount of sediment in it.

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* Read before the Minnesota Valley Medical Association, May 11, 1897.

This important subject in medicine is not so lightly passed by in our Society because it is so well understood, for in my acquaintance with practitioners of medicine I have certainly found that they have less knowledge of diseases of the stomach than of other organs of less importance in the physical economy of man.

It is not altogether an easy matter to diagnose functional disorders of the stomach, to differentiate them, to determine their respective causes, and consequently to prescribe for them intelligently and successfully. I wish it distinctly understood that this paper will not deal with, or in any way refer to, those functional disorders of the stomach which are entirely reflex, as, e. g., nausea and vomiting in pregnancy. I do not wish to be understood as in any way underating these disorders, but I exclude them from this paper because I do not wish to try to cover too much ground.

The functional and minor organic diseases of the stomach are few in number, and could be nearly or quite counted on the fingers and thumb of one hand, and the remedies for their successful treatment are not greater in number. The great desideratum is to know when and how to administer these.

It is a noticeable fact among students, post-graduates as well as under graduates, that they too often seek for some treatment without an intelligent knowledge of how to apply it. They will cast their eyes warily around a lecture room until a prescription is given or written, on the blackboard, then pencil in hand, and note book on lap, all eyes are turned to the all important.

Do we realize how easy it is to formulate a prescription if we have sufficiently investigated diagnoses?

Anacidity, subacidity, hyperacidity and gastric catarrh constitute at least seventy-five per cent. of all the functional and simple organic diseases which we are called upon to treat. Of the remaining twenty-five per cent., twenty per cent. are reflex, and five per cent. of a grave organic nature, such as ulcer, cancer, a marked degree of ectasia and gastroptosis, and atropy of the gastric glands. Of course these figures are but approximate. Of the above named diseases hyperacidity is by far the most frequent.

The remedies which if scientfically administered will cure all the seventy-five per cent., and in many cases alleviate the others, are hot water, lavage, HCl, antacids, nux vomica or its alkaloid strychnia. It will be observed in this enumeration I have not mentioned pepsin at all. I have not mentioned it because I think its administration is very rarely if ever indicated. If you will look at the files of my prescriptions in our drug stores for the last two or three years, you will find but few of them containing pepsin except as a vehicle. The gastric mucosa is very richly supplied with peptic glands over its entire surface, and the secretion of pepsin is found always to take place during gastric activity. Besides the pepsin does not enter into, and form combination with, or become transformed or exhausted by, its action upon the proteids; but its action is catalytic, and a comparatively small quantity of it will by its mere presence, stimulated by free HCl, convert a large amount of proteids into albuminoids or peptones. True there is a limit to this action, and after a certain amount of action by catalysis it becomes inert. Fortunately, however, for those physicians who use it in large quantities, it is a drug that does no harm, and no harm will result from its administration. The peptic glands, in addition to pepsin, secrete a small amount of a ferment known as lab-ferment. This has the property of coagulating or solidifying milk, which must take place before the pepsin and HCl can exert their digestive power upon it. This is freely secreted in infants. One remedy which I believe is good in almost every affection of the stomach, which we are now considering, is plain hot water, taken from three-fourths of an hour to one hour before each meal on an empty stomach. It should be plain hot water, and taken as hot as the patient can comfortably sip it. Do not make the mistake of adding salt to the water, for the chloride of sodium will excite the secretion of HCl at a time when it is not only not needed, but will produce acidity of the stomach, and lie there as free HCl, very possibly to interfere with the action of the saliva upon the carbohydrates. The plain hot water will not excite the secretion of the stomach juices, but will dissolve and carry off the ropy mucus common in catarrhal or other chronic hyperæmic affections of the stomach.

A remedy of far greater value than hot water taken as above is lavage, because it accomplishes the same thing, and much more thoroughly. This may be used but a few minutes before a meal. The stomach then should be thoroughly washed out by means of Ewald's soft rubber tube. At least a quart of water should be used, better two or three quarts. It should have a temperature of 110 degrees. This like other valuable modes of treatment should be done right, else it will not only do no good, but may result in harm. Do not use luke warm water, because this is very nauseating, do not allow your patient to throw his head back, for this will render more difficult the introduction of the tube. For the first few times a four per cent. solution of cocaine should be dropped into the throat, and the patient directed to spit it out after it has remained there for a moment. Pass the tube boldly back without putting the finger in the mouth, and direct the patient to swallow, then elevate the funnel, and pour in the hot water, but do not let it run too fast at first. In this way the stomach is thoroughly cleansed of the absolutely indigestible stringy mucus that lines the cavity in catarrhal affections. To the muscularis is imparted vigor, thus the motility of the stomach is improved and the secretions (especially HCl) are brought more nearly to a normal standard by the tonicity imparted to the glands. It matters not whether the condition be one of subacidity or hyperacidity.

Lavage is often, too, very useful three or four hours after a meal in a chronic dyspepsia, for by this means masses of mucus and decomposing material, the concomitant of gastric catarrh, can be swept out of the stomach. In this way the overworked stomach is relieved, and intoxication prevented, and consequently certain forms of headache, insomnia and other reflex symptoms which follow bad digestion. There is no remedy so valuable for this condition as lavage, far better than a physic, far better than an emetic, and something that can be used without debilitating or nauseating the patient. It is often useful in these cases to add a little bicarbonate of soda to the hot water for the purposes of lavage.

The next remedy which I will mention as belonging to our armenentarium in gastric therapy is HCl. This remedy has not so wide a usefulness as the treatment just mentioned, but is equally important when indicated. Pepsin is absolutely inert except in the presence of HCl.

It was formally taught that pepsin would act feebly in the presence of lactic or some other vegetable acid, but those are not in any way synergistic to pepsin. In the normal stomach neither HCl nor pepsin are secreted in the interim of digestion, but immediately upon the taking of a meal into the stomach both of these are secreted, the pepsin always freely except in some grave organic disease, the HCl freely or not, according to conditions. The secreted HCl at once unites with the proteids, and is taken up by them as rapidly as secreted until all are saturated with it. This combined acid as it is called exerts a very feeble digestive action upon the proteids, but the action of the pepsin upon the proteids containing the bound HCl will take place only in the presence of free HCl. If upon the introduction of a meal into the stomach there is not sufficient HCl secreted to combine with the proteids in a reasonably normal length of time, indigestion is the result. The evidence of this will be a sensation of weight in the epigastrium immediately after a meal of proteids. This will be followed by gaseous or rancid eructations, loss of appetite, and a flabby tongue showing the impress of the teeth. What is the theraputic indication? There is already subacidity or possibly anacidity, and if we administer an alkali, our patient will be worse. If we give pepsin our patient will be neither the better nor worse, for while the pepsin is not indicated, is not needed, and will do no good, yet it is innoxious, and will do no harm.

The rational therapy clearly is the administration of HCl, either just before or immediately after a meal. A most excellent synergist to this would be a cup of hot water an hour before eating, or still bettter lavage before eating. If in this same condition a combination of HCl and pepsin is given, a prescription so much cherished by some physicians, the patient will certainly receive benefit, but it will be due to the HCl and not to the pepsin.

During the first stage of normal digestion, while HCl is secreted, it is taken up by the proteids, and becomes bound-acid. As before stated the pepsin will now act freely upon the combination, and digestion of the proteids proceed normally. But I refer to this fact again to render more emphatic another fact, viz: that the action of ptyaline is not inhibited in the presence of bound HCl consequently the transformation of the carbo-hydrates into erythrodextrine will proceed during the first hour or hour and a half of digestion. The time will be greatly varied according to the meal taken. Hence the utility of a thorough mastication and insalivation of the food we eat.

The knowledge we now have of the action of the ptyaline in the stomach is strictly modern. Even in my own earlier education I was taught by no less authority than the late Dr. Dalton, of New York, that the office of the saliva was merely to lubricate the triturated mass, and facilitate its passage down the œsophagus.

It is very possible for gastric digestion to proceed from beginning to end with only sufficient HCl to enter into combination with the proteids, but this is not the most normal digestion. There should be, and in perfect digestion is, a little over secretion of HCl, thus leaving this acid free in the stomach. This must not much exceed three-tenths of one per cent. When this free HCl is present, it prevents the multiplication of bacteria or the growth of pathogenic fungi in the stomach. The bacilli of cholera and typhoid fever are destroyed in a small percentage of free HCl. Hence the empirical use of HCl in typhoid fever was founded upon a scientific fact.

It is the excessive or hypersecretion of HCl which has so much impaired stomach digestion. If this much exceeds three-tenths of one per cent. we have hyperacidity, then will follow burning eructations, a burning, gnawing sensation in the stomach, a distressed feeling in the epigastrium, with increased mobility of the stomach, and frequently severe pains simulating hepatic colic, and let us beware that in such a condition we do not diagnose the presence of gall stones, and perform an operation, only to find an empty bladder. A careful study of these two conditions will enable us easily to differentiate them.

You will infer from what I have said, that this form of impaired digestion is most likely to exist, and most always does toward the latter part of the gastric digestive process. It is the most common form and is the least understood, for it is common to prescribe pepsin and HCl when this very condition exists.

Again what is the effect of the combination? The pepsin will neither do harm nor good; the HCl will decidedly aggravate the already existing hyperchloridic condition. The therapy here is clearly indicated. The administration of alkalies about the time after a meal that these symptoms appear (from one to two hours) will give decided relief. Here again the hot water an hour before meals, or better still the lavage just before eating, will be a most excellent adjuvant.

If the symptoms I have enumerated are not always a correct indication of the therapy, the presence of the excess of HCl can be very well approximated by the withdrawal from the stomach, from one to two hours after a meal is taken (depending upon the kind of food taken), a small quantity of the gastric contents, and examining the same with the vanilla phloroglucin test. Congo paper remains unchanged in the presence of organic acids, except they be very strong, stronger than we ever find in the stomach, but to mineral acids the test is quite sensitive. The Congo paper dipped in gastric contents will change from a deep red color to a very dark iodine color, according to the amount of the free acid. The vanilla phloroglucin test is as follows: place in the bottom of a porcelain dish one or two drops each of the vanilla, the phloroglucin and of the gastric filtrate (it is better to filter the gastric contents before making this test). Now heat this over a gas flame, and the mixture will be converted into a bright orange, the degree of the brightness depending upon the amount of HCl. These tests are open to objection, because they are not exact. A much more accurate test is one made by triturating the gastric filtrate with what is known as a decinormal solution of soda, but this requires apparatus, and an accurately prepared soda solution, and it goes without saying that the general practitioner will not do much detailed laboratory work in his office.

The first two tests, the Congo paper and the vanilla phloroglucin test, are sufficiently exact for ordinary clinical purposes, and are no more difficult to make in any physician's office than the testing of urine for albumen. To make this test the patient should be given a small quantity of bread without butter, and with it may be taken a cup of weak tea without milk or sugar, or better an equal quantity of water. In a little more than one hour extract from the stomach by means of Ewald's soft rubber tube, or any stomach tube, with an exhaust bottle attached, a small quantity of the stomach contents, filter and test as above. If we find more than the normal amount of free HCl the therapeutic indication is very clear, and we are treating our patient with an accurate knowledge of his pathological condition, and upon a thoroughly scientific basis. If hyperacidity exists, the evil effects upon digestion by no means ends with the stomach, but the hyperacid contents after being repeatedly repelled by the faithful sentinal, the pylorus, are allowed after a while in consequence of sheer exhaustion to pass the portal of the stomach and enter the intestines where intestinal digestion is absolutely prevented by this hyperacid condition.

Intestinal or pancreatic digestion will take place in a very feeble acid reaction, but if the acid condition is at all strong, intestinal digestion is prevented or arrested.

It is a mistaken idea that pancreatine will not act upon the fats or starches in the stomach; it is certainly true that it will not when the stomach contains free HCl, but in the first stage of digestion when the HCl is bound, and the gastric contents are but feebly acid, pancreatine as well as ptyaline will act. Hence the administration of this remedy immediately after meals, where there is a feeble digestion of the fats and starches, in some form, is a very valuable remedy.

A very common form of indigestion is that known as atonic dyspepsia. In this ailment there is frequently more or less dilatation of the stomach with an enfeebled muscularis, and an absence of normal ennervation. There is therefore impaired gastric motility, normal motility being very essential to normal digestion. In this case there may or may not be anacidity; hyperacidity is likely to exist not due in this case to HCl, but to fatty acid, and other organic rancid acids, characterized by exceedly offensive eructations, nausea, often vomiting, epigastric distress and other symptoms. Nux vomica or its alkaloid strychnine is the remedy to give, and here again most excellent results by lavage, with a weak alkaline solution.

In conclusion, I wish to reiterate that no class of disease will engage the attention of the general practitioner which is to him of greater importance than diseases of the stomach, and in this brief paper I make no claims of having exhausted the subject, even that portion which is the subject or my essay, "Some of the Minor Ailments of the Stomach and their Remedies."

Galvanization or faradization of the phrenic nerves is said to cure obstinate hiccough.

SEVERE POWDER-BURN OF THE EYE.

By Matthias Lanckton Foster M. D.

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New York City.

During the evening of the Fourth of July, in 1895 a young man bent over a bomb and lit a very short fuse. The bomb exploded with sufficient violence to throw him on his back upon the pavement and on the following day I was summoned to his house by his attending physician. The severity of the injury was such that wherever the the skin of his hands and face had been exposed it was blistered and thoroughly blackened with powder. The integuments of the eyelids had suffered in common with that of the rest of the face and the lids were greatly swollen. A large mass of powder was found beneath the right upper lid and a considerable portion removed, when on account of the patient's general depression further interference was not deemed advisable at that time. Directions were given to have the eyes flooded with castor oil, to have atropine instilled and to have ice cloths continuously applied, the cloths to be changed every minute.

On the the following day the swelling of the lids had materially decreased and a large quantity of powder was removed from beneath both upper lids. The ocular conjunctiva above the right cornea was seen to have been burned away so as to almost denude the sclera, that above the left cornea was badly burned but to a less degree. Both corneæ were badly eroded and burned and a considerable quantity of powder was embedded in both scleræ.

Recovery was very slow but steady in its progress until complete on September 23; on September 28, the vision of the right eye was 20-200, of the left 20-70 with no improvement by means of glasses. Both corneæ were leucomatous. The patient was now able to return to business, and has been able to perform his duties satisfactorily ever since.

The fact that no symblepharon resulted is a surprizing feature of this case, but one which I think admits of explanation. When the explosion occurred the young man was bending over the bomb so that his face was bent slightly downward, the powder which entered the eyes through the palpebral fissures was driven obliquely over the cornæ, beneath the upper lids, tore and burned away the ocular conjunctiva above each cornea, but left the palpebral conjunctiva comparatively uninjured because this was out of the line in which the force of the explosion acted. This explanation also accounts for the almost complete absence of particles of powder from the cornea in spite of their erosion and partially for the fact that the eyeball was not penetrated by particles of powder. The latter fortunate circumstances was largely due to the protection afforded the eyes in this position of the face by the lower lids.

Although it is not unusual for severe injuries of the cornea to produce a less serious result than was at first anticipated, it is not common for such a serious injury of the conjunctiva to be followed by so small an amount of permanent damage.

22 East Forty-First St.

A Singular Judgment.—According to the *Gazette Médicale de Nantes* a most remarkable decision has lately been given by a French court. A certain Dr. Méloche appears to have been condemned for neglect in a case where recent abortion was alleged to have been induced, because he "neglected to make a chemical analysis of the blood, which gives one of the most positive signs of confinement." The solons who sat in judgment reproached him further because he did not make use of his stethoscope in determining whether the patient had lately miscarried.

Gay, of the Boston City Hospital, gives as the conditions under which chloroform is to be preferred to ether as an anæsthetic: "All operations liable to be attended with spasm of the glottis, œdema of the larynx or lungs, profuse secretion of fluids in the air-passages, and tonic contraction of the muscles of respiration, all cases requiring tracheotomy and œsophagotomy, as membranous croup, larngitis, acute, chronic, traumatic, specific, or tubercular; deep cervical cellulitis; deep tumors of the neck, as bronchocele; foreign bodies in the air-passages; foreign bodies in the œsophagus; bronchitis in the aged; asthma; and, finally, in cases liable to be complicated by difficult or suspended respiration.

The diagnosis of eruptive fevers at the onset is often so delicate, especially in light forms, that it is useful to report the slightest symptoms. Valli-Attiles especially notes the occurrence in scarlet fever of vomiting entirely different from that observed in other eruptive fevers. The vomiting occurs very early, before any other morbid manifestation, and in the absence of any previous gastric trouble, it surprises the child in the midst of play and before the appearance of headache, malaise, fever or initial angina. In a number of cases of scarlet fever without exanthema, the diagnosis was decided solely by the vomiting and the angina following it. The proof that this symptom belongs to the scarlet fever and not to an ordinary angina is that several cases of angina where it existed were complicated with nephritis, and that children subject to recurrent angina never vomited until the day they had scarlet fever and its characteristic angina.—*Jour. of Univ. Med. Sciences.*

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AUGUST 1, 1897.

THE RESTRICTION OF VIVISECTION.

There is at present before the Senate of the United States a measure entitled, "A Bill for the Further Prevention of Cruelty to Animals in the District of Columbia." As at the present time of writing the Senate is just at the point of adjournment, this bill cannot be brought up for consideration before the next session, but it seems likely that during the coming winter a strong effort will be made to secure its passage, and it is particularly during the recess of Congress that medical men should bring pressure to bear upon their representatives and senators to prevent action that may greatly retard the progress of medical science, and so prove a calamity to society as a whole as well as to the medical profession. For this bill under a title that sounds little alarming is an entering wedge whose progress cannot be allowed without incurring the danger of splitting to pieces the whole fabric of experimental physiology, pathology, therapeutics and surgery. At the meeting of the American Medical Editors' Association a resolution was passed urging upon the editors of medical journals to protest against the passage of the bill, and this resolution has been answered by editorials in many journals with the object of arousing the profession to a sense of the threatening danger. At the same time protesting resolutions have been passed by many medical societies and sent to the appropriate members of the House and of the Senate, and it is to be hoped that other medical bodies will fall into line and take action at the earliest opportunity.

The best way to get practical results in this matter will be by personal interviews between medical men and their representatives in Congress, and more particularly in the Senate. As long as the members of these bodies are approached merely by conflicting and opposing statements of one side and of the other, they, having no personal and direct knowledge of the merits of the case, will be likely to be swayed by sentiment rather than by reason and so be brought to favor the bill. But let them hear a fair presentation of the case from some medical man whom they know either personally or by reputation, and whom they can trust to know what he is talking about and to make only statements that can be relied upon, and they will be very ready to allow themselves to be instructed in the matter and to form an opinion not easily shaken by appeals of a purely emotional character.

There is no difficulty in overthrowing the claim of the anti-vivisectionists that there has been no life saving medical or surgical discovery made through experiments on animals that could not as well have been made without experiments entailing vivisection. What else but researches upon living animals could have given to cerebral localization that wonderful accuracy that enables the surgeon to place his trephine over the compressing clot as exactly as if the cranium were made of crystal? How could Murphy ever have perfected his button to such an extent that he dare urge its use upon man even in cases hopeless under previous surgical methods, unless he had first proved the success and safety of the device upon dogs? Even so simple a matter as the Lembert stitch, which has saved hundreds of lives, required experimental surgery upon animals to establish its value. How could the diphtheria antitoxin be produced except by its cultivation upon living animals? These are a few of the many instances that might be cited to show that great boons have been conferred upon the human race by vivisection which could not have been obtained otherwise.

The point to be urged with strongest emphasis is that there are already upon the statute-books laws enough for the punishment of all forms of cruelty that deserve punishment, whether the acts of vivisectionists or of others. Cruelty cannot be altogether done away with. Nature itself is cruel. The tornado, the blizzard, the earthquake are all cruel. Cruelty to animals is unavoidable under our present way of living. It is cruel to ride a horse to a standstill to call a doctor to a patient bleeding to death, yet who would condemn, much less punish the rider? It is cruel to wound game birds and leave them to slowly perish, but shall hunting be entirely prohibited and the sportsman fined or imprisoned because some birds must inevitably be wounded? It is cruel that rabbits should be made to sicken and die from inoculated disease during the study of serum therapeutics, but on that account shall science be stopped upon the threshhold of discoveries that promise to save thousands of lives? Laws punishing cruelty that is needless, that is purposeless, that is avoidable, will be as heartily approved by physicians as by any other class of men. What the medical man asks is that the cruelty incidental to his pursuit shall be covered by the same general law that forbids the driver of horses or the sportsman to be wantonly cruel. What the medical man objects to is that a special law should be made restricting his study of the nervous system by the use of frogs, while there is no law to prevent the fisherman from dragging live frogs for hours through the water by a hook thrust through their jaws, or the cook from boiling crabs and lobsters alive because they are thus most pleasing to the palate. And he will continue to protest against being made the target of special laws against cruelty, until there are brought forward in favor of such legislation far better arguments than are to be found in the hysterical exaggerations of *Life* or the wilfull misstatements of the anti-vivisectionists.

MISCELLANY.

OBITUARY.

GEORGE FRANKLIN FRENCH, M. D.

At a special meeting of the Hennepin County Medical Society held at the Minneapolis Public Library, Wednesday evening, July 14, 1897, the following memorial in honor of the late George Franklin French was unanimously adopted:

Suddenly called away at the end of many useful and laborious years, it is the painful duty of the Hennepin County Medical Society, in special session assembled, to record the death of our honored brother and member, Dr. George Franklin French.

Again are our ranks broken by the fall of one at whose side we have marched and toiled for many years, and while we pause to mourn his loss and bear with tender hands his body to its last resting place, we hear, even now, the command to close up our ranks and the call to new duties and denials.

It is well with him who has thus, in the maturity of his years and powers, passed from our immediate circle; and could he speak to us he would bid us God-speed in the good work that lies all around us, turning neither to the right nor to the left—but doing and living, with a single purpose, as he had done, for the relief of the ever present and pressing necessities and sufferings of our fellow beings.

Highly favored with a classical education, he made it the foundation for an equally finished medical education. Commencing his professional career, while still young, in the military service of the civil war, he followed it with unselfish zeal and love for his work up to the last hours of his life.

In the higher education, as a starting point, and in the unity of his life work in the pursuit of his chosen profession, has he left an example worthy of imitation by all who desire or deserve success. We recognize also with appreciation and pride the contribution he has made to the military, to the scientific and to the literary history of his profession.

Outside his professional duties he found rest and recreation and a constantly broadening culture in the literary pursuits which he followed throughout his life. At home or abroad, in the social circle, in the business world or in the meetings for scientific discussion, he was ever the same courteous and polished gentleman.

A dutiful son, a devoted husband, a loving father, the maker of a beautiful home, from all our association with him there will come thronging back through our memories many pleasant and helpful recollections, and in the example of his life we shall find much to emulate, to encourage and to profit by.

To the sorrowing mother, wife and children we extend our most earnest and heartfelt sympathies and pray that a consolation may come to them as deep and as lasting as the Divine Love.

W. A. Hall,
R. O. Beard, } Committee.
C. L. Wells,

THE AUGUST MAGAZINES.

Harper's for August is a story number, and excellent stories they are. Richard Harding Davis describes the inauguration ceremonies, his article being very elaborately illustrated by Gibson & De Thulstrup. Mr. Bigelow gives us a fine installment of "White Man's Africa." The whole issue is one of high excellence.

The Atlantic's articles are more of a popular nature than usual, and all have a high order of merit. Mr. Geo. Burbeck Hill gives a delightful contribution in the form of unpublished letters of Dean Swift. William Allen White, in "A Typical Kansas Community," shows that he can write something more serious than campaign literature, which made him quite famous during the last campaign. Mr. White is the editor of the *Emporia Gazette* and he writes like a journalist, while portraying character like a philosopher. In contrast with Mr. White's article is Mr. Alvan Sanborn's "A Massachusetts Shoe Town."

The Cosmopolitan has at least two articles that may well be the envy of any magazine: President Dwight's on "Modern College Education" and Julian Hawthorn's on the Indian famine. Perhaps next in freshness and interest to these is Mr. Robert P. Porter's article on "Japan's Stage and Greatest Actor."

Lippincott's, in addition to the complete story, contains such articles as "Are You Going to College?" "The Book which has Most Benefited me," "The Charm of the Inexact," and "Singing: Its Part and Its Possibilities."

The Review of Reviews analyzes "The New Tariff," gives "An American's View of Two Boer Republics," describes "The Klondyke Gold Field," tells of "The Seals in Diplomacy," illustrates "A Rose Carnival on Puget Sound," and actually fills the reader with wonder at its wide range of useful and timely information. Every number of the *Review* has the freshness of a daily newspaper, with the accuracy of a special thesis.

Tea and Its Effects.—According to Dr. James Wood, theinism is a common condition, for he found that out of 1000 patients applying for treatment, one hundred gave symptoms of tea inebriation. The theine affects the nervous system primarily and the organic system secondarily; the taumic acid effects the digestive apparatus and organs connected with it, while the essential oil gives the peculiar intoxication so typical of tea dipsomania. The length of time tea is infused will greatly change its composition and also its action upon the system. In an infusion of fifteen minutes of the finest Indian tea, the yield of taunin is nearly two and a half times as much as the finest China. In all teas the length of time of the infusion affects greatly the composition, with possibly an exception in the case of the better qualities of China tea. The essential oil is present in larger quantities in the first infusion than in subsequent ones and if the tea is not drunk immediately it is soon lost. This explains the headaches of professional tea-tasters, who use the infusion immediately after it is made. The amount of tea which can be taken with impunity differs with the individual, but usually it is found that an ounce of tea-leaves used daily will soon produce poisonous symptoms. This amount would contain about ten grains of theine.

Theine which is the most important constituent of tea, lessens tissue metamorphosis, and if pushed far enough causes general arterial excitement, tremor, and a very urgent desire to urinate. The imaginative faculties become more acute or the mind may wander. It seems to affect chiefly the sensory system, but in larger doses may cause convulsions. The amount of nitrogenous elements found in tea is too small to have any nutritive value. The essential oil is found more plentifully in the green tea and seems to be lost during the oxidizing process through which the leaves are put to produce the black variety. Green tea is also richer in theine and taunin. The influence which the green tea has on the nervous system and for which it is largely noted is due to the essential oil. The better class of people drink black tea, while the poorer classes, in Ireland especially, use the cheaper varieties and cannot avoid the deleterious effects which the better class escape. In reports just received from Ireland great prominence is given to the immoderate use of tea as a cause of insanity. The difference in the sexes, regarding the consumption of tea, is probably explained by the greater use of tobacco by men and the consequent satisfaction for a stimulant, while women assuage the importunities of the system for a stimulant by tea. While theine and caffeine produce diametrically opposite effects for the most part, they are similar in causing cerebral excitement, wakefulness, hallucinations and a soporific state following the exhaustion of insomnia. Tea and coffee undoubtedly antagonize each other, or rather the symptoms which each are likely to produce alone are not present when the two are used together. This was noticed in some patients who could drink large quantities of tea and coffee and be but slightly affected. They, however, complained the most of insomnia and excitement and of almost no other symptom.—*Quarterly Journal of Inebriety.*

NOTES.

SUPPLIED BLOOD "IN EXTREMIS." A KILLER OF SEPTICÆMIA OR SYPHILITIC VIRUS.

Cases By Dr. W. H. Parrons,

Omaha, Neb.

I.

Miss B., age 16, of Lincoln, Neb., was admitted to hospital in Kansas City, Mo., June 9, 1891. Laparotomy for ovarian cyst was performed on June 12. She was anæmic in the extreme when admitted, and generally in bad condition for an operation, but the case demanded immediate relief and the operation was deemed particularly successful; but the low vitality and extreme nervous irritability of the patient gave no promise of a favorable outcome.

Shortly after the operation the stomach became so irritable that all nourishment and even cold water was rejected. The temperature and other grave symptoms indicated sepsis. On June 18, the date of my first visit to the hospital, the patient's life was despaired of, and the last rites of the church were being administered at the time of my arrival. Dr. G., the surgeon in charge, kindly gave me a history of the case. Rectal feeding had already been tried with unsatisfactory results, beef tea and milk having been used. At my earnest request I was permitted to test the value of the blood treatment, the doctor saying at the time that the patient would not live 48 hours. Bovinine, one ounce, sterlized water, one ounce, pancreatine, five grains, raised to a temperature of 100 degrees F. were employed and forced high up into the rectum. This was retained, and the same dose was repeated after an interval of two hours. After eight hours the distress and painful retching subsided, and if food was not alluded to the stomach remained tranquil. For twelve days the only nourishment administered was bovinine every three hours day and night, and by this process of nutrition alone, the vitality of the patient was restored, so that at the end of that period she sat up in bed and, for the first time since the operation, expressed a wish for food. On July 3, this moribund girl was pronounced convalescent.

II.

In St. Louis, a lady had pricked her thumb with some poisonous product, and blood poisoning in its most virulent form supervened, and in spite of the best efforts of several leading surgeons, the case came to a point where amputation at the shoulder seemed the only alternative. The hand and arm were swollen to their fullest capacity, and honey-combed with scores of sloughing ulcers. Upon my advice the hand and arm were dressed six times each day, after having been thoroughly cleansed, with pure bovinine; the ulcers being packed with soft lint saturated with the same, and the entire arm and hand dressed with it. In thirty hours a change was manifest; and in sixty hours healthy granulations began to appear, diseased tissue to slough out, and in twelve days her hand and arm were as good as new.

III.

A man in St. Joseph, Mo., wounded himself in the hand while dressing dead hogs at the yards. Blood poisoning set in in earnest. In six days all dressings, etc., had failed, and amputation was suggested. I was in the attending surgeon's office when he related the case to me. I suggested wrapping the arm and hand in bovine blood, changing every four hours. In twelve hours the change was so marked that the doctor sent for me to see the case. In four days he was well. The doctor thanked me, as did the man who was about to lose his arm and probably his life.

W. H. Parsons, M. D.
814 N. 23d St., Omaha, Neb.

FERRATIN.

"The treatment of chlorosis affords one of the most brilliant instances of the specific action of a remedy. Apart from the action of quinine in malarial fever, and of mercury and iodide of potassium in syphilis, there is no other remedy the beneficial effects of which we can trace with the accuracy of a scientific experiment."—Prof. Osler in his *Practice of Medicine.*

The remedy referred to is iron. And the leading authorities in the medical world agree with this view of the specific value of iron. Then only question at issue is, What form of iron will yield the surest, quickest, best result?

This question has been answered conclusively by the highest authorities, on the incontrovertible basis of physiological test and clinical confirmation.

Prof. O. Schmiedeberg, of Strassburg University, indentified the form into which iron is converted after abstraction from all food in the system, and as stored in the liver and other organs as the reserve iron for blood formation. He then produced this agent and made it available for therapeutic use. The product is ferratin, an iron-albuminic acid, a definite chemical product (see *Archiv f. experimentelle Pathologie u. Pharmac.*, 23, No. 2 and 3; and other publications).

IT QUIETS PAIN AND PROMOTES IT.

Rather a paradoxical statement. True, nevertheless. When pain is useless, antikamnia quites it; when it is necessary, the same remedy increases it. This refers to the use of antikamnia in the pains of labor and as a promoter of labor pains.

H. C. Reemsnyder, A. M., M. D., of Philadelphia, in a recent article says that whenever there is unnecessary pain in labor he administers ten grains of antikamnia, repeated in two hours, if necessary. In this way the pain which annoys the woman without helping her is relieved, while the uterine contractions become more firm and labor is accelerated.

Dr. R. B. McCall, Hamersville, Ohio, contributes an article to the *Woman's Medical Journal* on this same subject. He says: "In cases marked by unusual suffering in second stage, pains of nagging sort, frequent or separated by prolonged intervals, accompanied by nervous rigors and mental forebodings, one or two doses, five grains each, of antikamnia tablets, promptly change all this. Indeed in any case of labor small doses are helpful, confirming efforts of nature and shortening duration of process."

OF INTEREST TO DOCTORS.

To the practising physician desirious of perfecting himself in the scientific methods of treatment of diseases of the eye, ear, nose and throat, the objects and aims of the Chicago Eye, Ear, Nose and Troat College will appeal most strongly.

This institution has for its object the instruction of regular practising physicians in the scientific treatment of all diseases of the eye, ear, nose and throat to qualify him to prescribe glasses for his patients when needed, and in general to give him a complete mastery of the specialties covered by the college course.

The college faculty embraces many of Chicago's most eminent specialists, and is perfectly equipped for the thorough study of the latest scientific methods of treatment of diseases of the eye, ear, nose and throat.

The hours of instruction are from 9 A. M. to 6 P. M. Time lost during the prescribed course can be made up at any time within one year.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION. MEETING AT LOUISVILLE, OCTOBER 5, 6, 7, 8, 1897.

The Executive Committee met recently at Louisville, in conjunction with the local Committee of Arrangements, the following being present: Drs. Stucky, Grant, Mathews, Love, Holloway and Reynolds. It was determined to make the coming meeting the largest and best in the history of the Association, and everything points to a fulfillment of this endeavor. The railroads will make a round-trip rate of one and a third fare, or probably one fare. The address on surgery will be delivered by J. B. Murphy, Chicago; the address on medicine by Dr. John V. Shoemaker, Philadelphia. Title of papers should be sent to Dr. H. W. Loeb, Secretary, St. Louis, Mo.

ULCERATIVE CONDITIONS.

Dr. R. H. Baylor, Stewart, Tenn., in reporting his experience with sennine as an antiseptic and germicide dressing as well as stimulating healthy granulations on an ulcerative surface says, "There is nothing further desired in the antiseptic line" and he has accomplished preëminently satisfactory results in ulcerative conditions where everything else had failed. Sennine is easily applied—a clean dressing and permanent relief in a short time.

Dr. A. B. Conklin, Elk Rapids, Mich.: I am very much pleased with "Sander & Sons' Eucalyptol." I use with great effect in acute nasal catarrh, as spray, one part of Eucalyptol to twenty or thirty parts of water and employ the same combination as a gargle in diphtheria. Eucalyptol one to three drops, on sugar, every three to six hours, in chronic laryngeal and bronchial cough with excessive expectoration, has a wonderful curative effect. In gastric catarrh and flatulent dyspepsia it works well. In typhoid fever I got good systemic effects from three-drop doses, every three hours, in milk.

Extract from a letter received from Dr. Herman E. Pearse, Editor *Kansas City Medical Index*, and a prominent practitioner of that city, July 16, 1867, says: Campho-Phenique, Campho-Phenique Powder, and Campho-Phenique Gauze are always on my dressing table at my clinic room, always in my cabinet at my private office, and always in my satchel for outside work. The reason for this, if asked, is simply because they do their work well, and constitute an ideal dressing outfit.

ORIGINAL ARTICLES.

WHAT IS THE RELATION OF SCROFULOSIS TO TUBERCULOSIS? IS THERE SUCH AN AFFECTION AS SCROFULOSIS APART FROM TUBERCULOSIS; OR SHALL WE BY COMMON CONSENT ELIMINATE THE TERM "SCROFULA" FROM MEDICAL LITERATURE?*

C. G. Slagle, M. D.

Minneapolis, Minn.

I apprehend that these questions can only be answered satisfactorily by a concensus of opinion of leading authors.

It seems that very few terms in medicine have undergone more mutations in their signification and limitations than the word "scrofula," and the title of this paper has been suggested by observing that some advanced authors have dropped and ignored the word altogether (notably Prof. Rotch in his late published lectures on paediatrics). The advances in pathology and bacteriology within a few decades have furnished us a more correct and scientific basis for the nomenclature and classification of diseases, and yet we find ourselves embarrassed and hampered by adopting suddenly radical changes in regard to names established by long usage, even though it would be more in accord with recent scientific advances in pathology.

In medicine, as elsewhere in literature, "custom becomes law" to a great extent, and often embarrasses scientific progress in certain directions, especially in medical nomenclature. This is notably so in the subject which I desire to discuss in this paper (scrofula or scrofulosis). All seem to agree that it were better if we could at once and forever eliminate this term from medical literature, as ambiguous, unscientific and useless.

But it has been employed so long, and has become so familiar both to the laity and to the medical profession everywhere, that it would seem an awkward innovation for any one author or even a few men in authority to suddenly drop and ignore the term, as has been attempted by some recently and without reference or explanation, thus virtually ignoring the existence of any such pathological conditions as we have long been accustomed to designate "strumous."

It has seemed to me that it would be more conservative to attempt to limit its signification, and thus give a more definite scope to its application and classification henceforth, as has been attempted by some of our late authors on paediatrics, than to ignore entirely not only the term, but to some extent the pathological lesions which the term has for so long a period represented. We must admit, however, that the terms "struma" and "scrofula" have been for years a stumbling block to the medical profession, as to what limitation and interpretation would be most scientific and intelligible. Three decades ago some of our greatest authorities (notably Gross) were declaring that all we were calling scrofula were only different manifestations of tuberculosis, and since Koch's discovery of the tubercular bacillus that has been the teaching of most of our advanced pathologists, but during the last thirty years the various views of pathologists have been thus stated: "Scrofula, always tuberculosis" (Gross). "Only different manifestations of transmitted syphilis" (Palmer). "A nonentity" (Rotch). Generally, tuberculosis, limiting the term to certain surface glandular and cutaneous lesions, which, although not proven to be tuberculosis, yet certainly constitute a "diathesis" strongly predisposing to tubercular deposit (Holt, Starr, Edwards, Ashby and others).

Had we the time here, it would be curious, as illustrating the vagaries of medical minds in the past, to trace the origin and various significance of the term "scrofula," beginning a few centuries back and noting its varied application and limitations to the present. Originally the term was limited to an enlargement of the thyroid gland, which was supposed to be identical with a similar affection often seen on the throat of young swine (and hence probably the origin of the term from scrofa, a pig); the term was soon employed in a wide and indefinite sense, to include all glandular enlargements and many other similar affections having no pathological connection either with each other or with bronchocele to which the term was first applied. After much time and slow progress in pathology it began to be suggested by a few leading pathologists that much, if indeed not all that we had been calling scrofula was veritable tuberculosis, and such is the fast growing conviction of leading pathologists at present; hence the effort to limit very much the application of the term or to eliminate it altogether from medical nomenclature as indefinite, unscientific and confusing.

There remain, however, at this day, not a few advanced medical men who yet contend that there is an aggregation of clinical symptoms and pathological lesions which we have been accustomed to call scrofula that cannot or have not been proven tuberculosis, while freely admitting that very much of what we formerly called scrofula is really tuberculosis, and that hence to eliminate the term entirely would be an unwarrantable innovation.

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*Read before the Section of Medicine of the Minnesota State Medical Society, June 17, 1897.

In response to inquiries sent out by myself to some leading paediatrists (for the subject seems to belong to the domain of pediatrics), Dr. Edwards, of San Diego, California, kindly replied as follows:

"In reply to your letter of January 28, 1897, I have this to say: As you perhaps know, I am actively engaged upon a revision of the 'Cyclopaedia of Diseases of Children,' and am issuing a fifth or supplemental volume, and the questions which you ask have been occupying my earnest thought for some time." (I may say here that the questions asked Dr. Edwards were in regard to the propriety of dropping a number of familiar terms like "scrofula," "diathesis," "colic," "dysentery," "eclampsia," "croup," etc., etc., as has been done by some late authors, at the suggestion of the American Paediatric Society).

"I find," says Dr. Edwards, "that in our present state of knowledge of disease, classification into a nomenclature which is pathologically correct and at the same time clinically acceptable, is indeed a difficult task. For example, the term "scrofula" is pathologically very inaccurate, as scrofula is now generally conceded to be tuberculosis, but clinically we certainly meet children who present to us in a striking manner the complexus of symptoms which the older writers called scrofula, and in whom even now we cannot demonstrate the existence of tuberculosis."

After citing examples of difficulty of classification, he concludes "that for the present we must be content with a provisional nomenclature," and adds, "I am opposed to the sudden elimination of old and familiar terms until we are perfectly sure that the new designation is based upon sound pathological and clinical reasoning, and would prefer that we retain the older designations coupled with the newer classifications, as in Holt's 'Diseases of Infancy.' Example: Tuberculous adenitis. Synon. Scrofula."

This would certainly give the application of the much abused term a more definite and limited signification, and would seem preferable to ignoring it altogether.

Prof. Osler, in "The American Text Book on Diseases of Children," has this to say of the relation existing between scrofula and tuberculosis:

"Two types of conformations have long been recognized as predisposing in some way to the infection of tuberculosis, as, 1st., the tuberculous, with bright eyes, oval face, thin skin and long, thin bones; 2nd, the scrofulous, with heavy figure, thick lips and hands, opaque skin and long, thick bones;" and, further, "The lesions known as 'scrofulous' are tuberculous, and are due to the development of the bacillus tuberculosis, so that the term scrofula is now almost, and may as well be entirely abandoned, though the so-called scrofulous lesions of gland and bones and skin are bacillary in origin; yet it has been shown that their virulence is not so extreme as that of the tuberculous products of the viscera, the latter, according to Arloing, killing when injected in both guinea pigs and rabbits, the former only guinea pigs. This corresponds with the more protracted course and more favorable termination of the so-called scrofulous affections.

"It has been suggested that the scrofulo-tuberculous manifestations are caused by an attenuated virus.

"Marfan and others have attempted to show that these scrofulo-tubercular lesions when recovered from confer a sort of immunity from pulmonary tuberculosis."

May there not be a grain of truth in this statement? If true, it would explain what has been a matter of curious observation by myself in my clientele among the poor Russian Jews of our city, that, although their children so often exhibit what we have been accustomed to call surface manifestations of scrofula in the lymphatic glands about the neck and on the skin (as strumous intertrigo, etc., and in ozaenas, otitis, ophthalmias, etc.) they are, nevertheless, remarkably exempt from visceral tuberculosis, both in childhood and in after years. They seem as it were to "outgrow" those surface strumous ailments, as they are rarely apparent after puberty.

Through the courtesy of Dr. W. A. Edwards, M. D., editor of "The Cyclopaedia of Diseases of Children," Vol. V, Supplement, I am permitted to quote from advance sheets of an article by Dr. Henry Ashby, M. D., F. R. S. P., of Manchester, England, "On the Relations of Scrofulosis to Tuberculosis," as follows:

"The word 'scrofulosis' has suffered many things at the hands of the present generation of physicians, and it is now less frequently heard than formerly; indeed, it has been entirely abandoned by many writers of repute."

After giving as a reason for its abandonment by some that it has become with the public a sort of term of reproach as connected with "work-house" and "pauper" children, and as associated with the idea of unsightly scars and swellings on the neck, the author further says: "But Koch's discovery of the tubercle bacillus, which he showed was present alike in the gray granulations which were regarded as pathognomonic of tubercle, and also in the caseous gland-masses which were called scrofulous, more than anything else gave the coup de grace to the word 'scrofulous.' Henceforth the caseous degenerations were instances of tuberculosis of the chronic variety, and no other term was needed. The presence or absence of the bacillus is now regarded as giving the clue to what is tubercular and what is not, and the much abused term of scrofulosis is perishing or has perished in contempt."

"We must, however," says our author, "bear in mind that while much to which the term 'scrofula' has been applied is more correctly and conveniently included in the domain of tuberculosis, yet much that was formerly called scrofulous is not tuberculous in the sense that the specific bacilli are present. The chronic and inveterate catarrhs of the mucous membrane; the enlarged tonsils, the nasal adenoids, the middle ear catarrhs, impetigo, etc., are not tubercular processes; they are often precursors of tuberculosis, and occur in children who are especially liable to become tuberculous."

"These ailments," our author remarks, "are diathetic and furnish a fruitful soil for the tubercle bacilli."

To quote Ashby again: "That the diathesis to which scrofula has been applied is a very real one everybody must admit, though they refuse to use the word 'scrofulous,' and decline to invent a name, though the ugly word 'lymphatism' has recently been coined to cover part of the ground." And, further: "One other point seems worthy of remark, and that is, while all tubercular lesions resemble one another in histological characters, and in the presence of tubercular bacilli, yet clinically they differ enormously. No doubt, it was this difference in the clinical characters that lead, in part at least, to one set of lesions being called 'scrofulous' and another 'tubercular,' as the former was supposed to be a less fatal form of the disease than the latter." Our author, after insisting that very much depends upon the soil in the development of tuberculosis from what we have been accustomed to call "scrofulosis," remarks: "In considering the question we must also remember that the importance of a tubercular process depends to some considerable extent upon its geographical position. Compare the relative danger to life of a caseous or tubercular gland in the neck, or a patch of lupus, with a tubercular growth on the small arteries of the brain, or of a tubercular bronchial gland imbedded in lung tissue. But beyond this location, a tubercular process must depend largely upon 'soil,' as I have already pointed out."

The conviction that scrofula and tuberculosis are somehow very nearly related has forced itself upon medical men for some time, but that they are identical has been questioned by many until recently, and even yet by some few. But with some such limitation of the term scrofula as here indicated, and with such suggestions as are here quoted from late and advanced authority as to the essential nature of the various pathological manifestations, much that seemed puzzling and contradictory can be reconciled without being forced to suddenly drop or expunge the familiar term "scrofula" from medical literature, but as an entity, separate and apart from tuberculosis, we will hardly see it again discussed in the future in our text books, as has been so generally done in the past, and the ambiguous term will probably be gradually eliminated altogether. But it will take time to do so without much inconvenience, as its long and familiar usage, even though in a rather loose and indefinable sense, has secured for it a measure of stability which only much patient endeavor can erase.

In conclusion, then, I will venture to suggest that, for the present at least, we may only apply the term "scrofula" to those local lesions in the skin, mucous membrane and superficial lymphatic glands from which the subjects usually recover, and in which we cannot demonstrate the tubercle bacilli, regarding all others familiarly called "strumous manifestations" as strictly tubercular, always bearing in mind, however, that the former are diathetic, and furnish a favorable soil for the development of the infection of tuberculosis.

This seems to be the most conservative method of dealing satisfactorily with this subject until we can form a more satisfactory medical classification and nomenclature, when all such unscientific terms can be eliminated without doing violence to long established usage.

This, I think, will answer as best we can at present the questions propounded as the subject of this article.

307 Plymouth Avenue.

NOTES ON CASES OF EPIDEMIC PNEUMONIA AT FORT SNELLING, MINN.*

By Henry A. Shaw, M. D.,

United States Army.

The purpose of this paper is to bring to your notice certain cases of lobar pneumonia and lobular pneumonia which occurred at Fort Snelling, Minn., during the winter of 1895 and 1896. They seem to be of interest, first, in connection with the question of the contagiousness of pneumonia, which is yet an unsettled one, and, secondly, on account of the intimate association of the two diseases. It is now generally admitted that in the great majority of cases an attack of lobar pneumonia results from infection with the pneumococcus, sometimes associated with the streptococcus of suppuration, and many recent writers are of the opinion that the same organisms are the aetiological factors in lobular pneumonia. The pathological lesions of the two diseases are often strikingly similar, and clinically we see cases which we call lobular pneumonia, in which nearly a whole lobe of the lung may be consolidated, and the physical signs closely resemble lobar pneumonia, yet the mild onset, the comparatively low temperature and the absence of toxic symptoms present a very different picture from that which the books describe as lobar pneumonia.

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*Read before the Section of Medical Education, Jurisprudence and State Medicine of the Minnesota State Medical Society, June 16, 1897.

Other cases are seen where the rational signs are those of a typical lobar pneumonia, the sudden chill, the high temperature, the intense headache, the rapid pulse, and yet the physical signs may show that only a very small portion of a lobe may be consolidated.

It would seem, therefore, that there is no sharp line to be drawn between cases of lobar and lobular pneumonia; that there are cases in the border land between the two diseases which would be called lobar pneumonia by one observer and lobular pneumonia by another. If this be granted, there is the more ground for believing that the two diseases may be caused by the same organisms, and if the principle of contagion in pneumonia be admitted, it would be possible that a case of lobar pneumonia could give rise to lobular pneumonia, and vice versa.

There are two series of cases that I wish to report, five in the first series, and three in the second.

Case No. I. Hospital steward at Fort Snelling, 51 years old. Died in his house early in the morning of Nov. 28, 1895. During the previous day he was about the hospital doing duty, but complaining of malaise and chilly sensations. During the evening he had a chill; about midnight he had a fainting attack, and asked his son, who was with him, to go for a doctor. Before the boy got out of the room the father was dead.

Autopsy, six hours after death. Body large and well nourished. Rigor mortis present. Lungs distended and filling pleural cavities. On section the lower lobes of both lungs were seen to be markedly injected, and on pressure a frothy, bloody fluid exuded from the surface. Bronchial tubes and bronchioles of these lobes were filled with fluid of this character. Heart small, flabby, reddish yellow. On section the walls were thinned and of a pale, mottled yellow. Diagnosis, pneumonic congestion of both lower lobes, fatty degeneration of the heart.

Case No. II. S. G. Very little previous history in this case could be obtained. This man was 29 years old, a tinman by trade, and for years had been a hard drinker, having had delirium tremens more than once. He was enlisted in St. Paul, Nov. 21, 1895, and was sent to this post Nov. 27, 1895. He was drunk when he reported for duty, and was sent to the guard house. During the night he was said to have been noisy, violent and delirious. When brought to the hospital the next morning he was quiet, but was noticeably unsteady and trembling. He had no fever. During the night he became violent and delirious, finally unmanageable, and a restraint apparatus was applied. The case progressed steadily from bad to worse; the heart gradually failed, and the patient died at 3 o'clock on the following afternoon. A physical examination of the lungs was impossible on account of the patient's extreme restlessness and violence.

Autopsy, eighteen hours after death. Body large, with much flabby, subcutaneous fat. Lungs of a dark red color, distended, and filling the pleural cavities. Lower lobes increased in density, and on section seen to be in a state of red hepatization. Upper lobes deeply injected, and on section a frothy, bloody fluid exuded from the surface. Heart small and flabby. Surface and cut section show streaks of yellow between muscular striae. Diagnosis: Acute lobar pneumonia, second stage; fatty infiltration of the heart.

Case No. III. Dr. B. C. W. attended the preceding case. He saw him frequently during the day of entrance, and was with him almost constantly on the day of his death. He made the autopsy in this case (No. II) on Nov. 30, about 10 o'clock a. m., in a cold room. During the hour or more in which the autopsy was in progress, Dr. W. became thoroughly chilled. About the middle of the afternoon he had chilly sensations with malaise and headache. Early in the evening he was attacked by a severe chill, lasting several minutes, followed by a temperature of 104 degrees. The next morning, Dec. 1, the temperature was 103 degrees, pulse about 100, and respiration 25. There was intense headache and restlessness. Another chill followed toward night with increasing temperature and headache. A careful examination of the lungs was made with a negative result. The third was much like the second, but on the fourth cough appeared, with a small area of dullness, bronchial breathing, and fine, crepitant râles in the right lower lobe, posteriorly. The area of dullness and bronchial breathing quickly extended to the whole of the lower and middle lobes of the right lung. Rusty sputum appeared on the fifth day, and a diagnosis of lobar pneumonia was made.

The temperature varied between 103 and 104.5 degrees for eight days, when it gradually fell, reaching normal on the twelfth day.

Case No. IV. Mrs. W. had been in close attendance upon her husband (case No. III) for four days. On the evening of the fourth day she had a chill, with a temperature of 103 degrees. Examination of the lungs showed a diffuse bronchitis. Numerous fine, moist râles scattered over the entire chest, but no dullness. There was a troublesome cough, and considerable thin, muco-purulent expectoration. The temperature was irregular during the first week of the disease, between 99 and 103 degrees. Toward the end of the first week an area of dullness, perhaps as large as an orange, appeared, with bronchial breathing, in the left lower lobe. The afternoon temperature, during the second week, remained near 103 degrees, with only slight morning remissions. The pulse was of good quality, about 100. The character of the expectoration changed but little, except that occasionally it was streaked with blood. Near the end of the second week there was evidence of a small area of consolidation in the right middle lobe. The signs of consolidation in the left lung had nearly disappeared. Early in the third week the patient's strength began to fail rapidly. The temperature often touched 105 degrees in the afternoon and the pulse increased in frequency with a corresponding falling off in quality. A low, muttering delirium was often present during the acme of the daily fever. A third patch of consolidation was discovered during the third week, which occupied apparently very nearly the whole of the apex of the left lung. During the fourth week the patient's condition was most critical. Prolonged chills occurred daily, quickly followed by a temperature between 105 and 106 degrees, and then after a few hours a rapidly falling temperature, often nearly to normal, accompanied with great prostration and cardiac depression. After four or five days a gradual improvement took place; the chills subsided; the heart's action improved; the signs of consolidation cleared up until at the end of the sixth week the patient was fairly convalescent. I believe that this case was one of lobular pneumonia, taking into consideration the onset, beginning as it did as a diffuse bronchitis, the tardy development of the patches of consolidation, and the protracted course of the disease; yet there may be equally good ground for calling it an atypical form of lobar pneumonia. Another interesting point is the possibility that the case was due to direct contagion from the preceding one. Mrs. W. had been confined to the house for four or five days in intimate association with her husband. The occurrence of the disease in her at this time is certainly strongly suggestive of contagion. In support of this idea comes Case No. V, the nurse, Miss W., who had the care of Dr. W. after the fourth day, and subsequently of Mrs. W. About two weeks after her arrival, that is at the end of Mrs. W.'s second week, Miss W., the nurse, began to feel badly, but in an indefinite way, malaise, headache, anorexia. Three or four days later she had a chill, and began to cough. She insisted that she was not sick, but had only a cold. At the end of another week it was evident that she was too sick to work, and she was finally persuaded to take care of herself and to go home. I have seen her recently, and she tells me that her physician believed her to have had trouble in the right lower lobe. Just what the condition was I was unable to learn, but she told me that she had a good deal of pain in the right side of the chest, an abundant muco-purulent expectoration, which was often "rusty," and a temperature between 103 and 100 degrees for two weeks after she left the post.

It is unfortunate that the exact physical signs in this case are not obtainable, but from the rational signs we may safely say that the case was one of lobular pneumonia or severe bronchitis, probably the former, on account of the expectoration.

The second series of cases comprises three, occurring successively in the three children of one family during a period of about six weeks.

Case No. I. W. M. C., a delicate girl of 14 years, was first seen on Nov. 20, 1895. She had cough with scanty muco-purulent expectoration; temperature 102 degrees; physical examination of the chest showed numerous fine and medium moist râles over both lungs, with a small area of consolidation in the lower lobe of the right lung posteriorly. For a week or more the temperature varied between 100 and 103 degrees, the cough continued and the physical signs remained practically unchanged. Then a gradual improvement was noticed and during the third week the patient was convalescent. The diagnosis made in this case was lobular pneumonia.

Case No. II. A girl of 10 suffered a similar attack, which began on Dec. 1, and lasted about three weeks. The rational and physical signs were much the same as in the preceding case. The case was considered one of lobular pneumonia.

Case No. III. I. M. C., a robust girl of 12, first seen on Dec. 10. She had had a chill, pain in the left side, in the neighborhood of the 7th rib, under the armpit. She had cough, with scanty, muco-purulent expectoration tinged with blood. Physical examination of the chest showed an area of dullness corresponding with the lower lobe of the left lung, with bronchial breathing, and an explosion of fine, crepitant râles at the end of each inspiration. The temperature remained between 102 and 103 degrees for eight days and then fell suddenly to normal, resolution being established. Diagnosis: lobar pneumonia.

In brief, in the first series of cases, No. I was a case of beginning lobar pneumonia, and had no other connection with the others, except that the autopsy was performed by Dr. W., the third case. No. II was a typical drunkard's pneumonia. He was carefully and assiduously watched by Dr. W., who on the third day after coming into contact with him had his initial chill, followed by a lobar pneumonia. Four days after this chill Mrs. W., who had been meanwhile devoting herself to her husband, was attacked by a chill, and suffered a prolonged siege of lobular pneumonia. During this sickness the attending nurse became ill, and suffered an attack, probably of lobular pneumonia.

In the second series, three young girls of the same family, the first case is one of lobular pneumonia, the second lobular pneumonia, and the third a typical lobar pneumonia.

NOTES ON DYSTOCIA.*

By W. T. Adams, M. D.,

Elgin, Minn.

I desire in the following paper to relate a few cases of dystocia that have occurred in my practice, and to comment briefly upon them, trusting that there will be enough of interest in them to justify the attempt.

CASE I. REDUNDANT VAGINA.

Mrs. S.—Age about 38 years, mother of five children. Confinements had all been tedious. General health good. Was under the care of a midwife, and had been about 36 hours in labor when I was called. The midwife assured me that there was no room for the child to pass, and that the parts were too narrow. Examination revealed a tense ring in front of the child's head, somewhat suggestive of a rigid os. The symmetry of the ring throughout its entirety gave a peculiar appearance. I diagnosed a redundant vagina which had prolapsed in front of the child's head, and by pressure had become so completely engorged with blood as to cause a formidable barrier in front of the head. I held the head back during the interim of the pains, and by carefully manipulating the obstructing ring, succeeded in reducing the engorgement in the course of an hour and a half, and, passing it back of the head, effected the safe delivery of the child. Subsequent examinations disclosed simply a redundant vagina, with no atresia, or cause of dystocia other than the fold which had gathered in front of the head.

CASE II. SHORT CORD.

Mrs. P. Primipara. Age 22 years, German. Pelvis roomy and well developed. Pains regular and strong, but attended with an undue amount of suffering. Examination after two hours of labor, revealed the os in fair condition, and quite dilatable. Vertex presentation, first position, and all indications favorable for prompt and easy delivery. One thing, however, that caught my attention, was that with the onset of the pain, the head would twist or rotate to the left side of the mother, and that the rotatory motion was increased with each expulsive effort, and when the uterus relaxed with the cessation of the pain, the head would recede with a contra rotation. I diagnosed a short cord, with coils about the neck or body of the foetus, or both. I tried various expedients such as change of posture, crowding down of the uterus, etc., with negative results. The cervix and vagina remained in good condition, but there was approximately no progress. I ruptured the membranes, hoping to bring the placental end of the cord closer to the foetus, by the escape of the liquor amnii, but with fruitless results. I finally resorted to the use of forceps, and after considerable effort effected the safe delivery of the child, and with it came the entire secundines, including a liberal amount of blood clots which had gathered as the placenta had been separated.

I found the cord four times around the neck of the child and once around its body. The cord measured about twenty inches in length.

The diagnostic points in this case are the severe suffering the mother endured with each pain and the rotatory motion of the head. The pains were not specially located at the point of placental attachment so far as I could determine, but were no doubt caused by the tugging upon the placenta. The rotatory motion of the head was obviously caused by the coils of cord around the neck and body of the child. This accidental short cord, without doubt, made a difficult labor out of what would otherwise have been an easy one.

CASE III. SHORT CORD.

Mrs. W. Age 32. Second confinement. The head was born after a tedious labor and the cord was found coiled once around the neck of the child. In attempting to slip the coil over the head of the child, I made, perhaps, rather too strong traction upon it, it suddenly gave way, and the delivery was completed precipitately. I saw at once that the cord was torn loose from the child's navel, and that blood was spirting freely from both the navel and cord. Grasping both the navel and cord, I entrusted them to an assistant until I could arm a curved needle with silk. I then placed a purse string ligature around the navel, of which, happily, the tegumentary borders were rather redundant, and controlled the hemorrhage without further accident. The cord measured eleven inches in length. There were no marked diagnostic signs in the case, other than the slow and unsatisfactory progress which could not be accounted for in any other way. I will also note in this case that the mother had had much pain and uneasiness especially at night during the month previous to her confinement, which caused her at one time to send for me, thinking that labor had begun.

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*Read before the Section of Obstetrics and Diseases of Children of the Minnesota State Medical Society, June 16, 1897.

The query is suggested as to whether or no the weight of the foetus in utero tugging upon the short cord was not the cause of the uterine irritation during the last month of gestation.

CASE IV. LOW ATTACHMENT OF THE PLACENTA.

Mrs. S. German. Age about 35 years. Mother of three children. First confinement forceps were used, second and third confinements comparatively easy. Patient had been having regular pains for two or three hours before my arrival. Examination revealed the os well dilated and soft. The presentation instead of being central was a head crowded toward the right side of the pelvis, so much so that it seemed to strike almost squarely upon the right rim of the superior strait. I could feel no special obstruction upon the left side, and endeavored to turn the head enough to bring the presenting part into the median line. During the interval of the pains the head would seem to assume the central position, but with the recurrence of the contraction it would press again upon the right rim of the pelvis. By bimanual palpation I satisfied myself that there was only one foetus in the uterus, though the size of the abdomen and the character of the presentation suggested the possibility of twins. I then suspected that the placenta was attached low down and was crowding the head to the right of the pelvis, as I have described. I then examined the abdomen with a stethoscope and could clearly outline the placenta in the left, antero-lateral quadrant of the uterus, very low down, but not low enough to be touched with the finger by digital examination. Palpation without other aids would not have enabled me to make the diagnosis.

Finding the progress so unsatisfactory, and the obstruction so formidable, I ruptured the membranes and applied the forceps, and effected the delivery without much difficulty.

I wish to note with emphasis the importance of auscultation in the examination of the parturient patient. Indeed, I do not think a physician is justified in completing his examination in any case of dystocia, until he has made a careful stethoscopic examination.

CASE V. PLACENTA PRAEVIA CENTRALIS.

Mrs. S. German. 44 years of age. Mother of eleven children. On the morning of May 8 I was called to the case and found that she had just had a severe hemorrhage; she was eight months pregnant and this was the first appearance of hemorrhage. The os was completely closed, so far as I could determine, but from the digital examination I was inclined to believe that the case was one of placenta praevia, rather than that of an accidental hemorrhage from other causes. With the aid of the stethoscope I could hear the bruit of the placenta close down over the pubes. This confirmed my diagnosis of placenta praevia, and subsequent developments proved that the placenta was located centrally over the os. I tamponed the vagina and rereturned home, inasmuch as there were no pains and no dilatation, and the hemorrhage, for the time being had ceased. I was called again, about 8 o'clock in the evening, and found her bleeding rapidly in spite of the tampon. There was slight dilatation of the os, and pains were almost wanting. I gave an anaesthetic and dilated the os with my fingers, introducing the first one with difficulty, then adding the second, third and fourth, until my whole hand engaged in the os as a wedge. I steadily insinuated my hand with the palmar surface of the fingers against the posterior wall of the uterus, while the dorsal surface carefully engaged against the placenta, thus preventing nearly all hemorrhage, until finally I ruptured the membranes at the posterior margin of the placenta, entered the womb with the whole hand and performed podalic version. The time consumed in bringing on and completing the delivery was a little less than an hour and a half, and the loss of blood after I began operations was almost immaterial. The previous hemorrhages had been severe, so much so that I felt a little chary about the ability of my patient to stand the ordeal of a forced labor, but I could see no other course to pursue.

There is another class of cases which it has been my fortune to encounter a number of times, and which I do not find clearly described in any of the literature to which I have had access. I refer to cases where there is a vertex presentation, and where the palmar surface of the hand rests against the face, presumably around the angle of the jaw, on the same side to which the hand belongs, while the elbow, more than likely, rests well around upon the sternum.

CASES VI. AND VII.

Mrs. S., and Mrs. H., both Americans, and each about 26 or 28 years of age. Both primipara, and were each delivered with forceps, one in May, and the other in July, 1895, and were almost parallel cases. Vertex presentation, first position, first stage of labor uneventful, and for primiparae quite satisfactory. Second stage of labor began satisfactorily, but before the head had completed more than half the descent of the parturient canal, there began a rolling impulse of the head as though it slipped from side to side. Not a rotatory motion, but more of a side to side motion, as if slipping back and forth across some projecting obstacle. All progress was arrested, notwithstanding there were strong expulsive efforts.

After waiting until satisfied that forceps must be used, I applied them, and noted the fact that the blades did not lock squarely, notwithstanding the fact that I was certain of my diagnosis of true vertex presentation. I removed and reapplied them with like results. I proceeded to deliver carefully, and without serious hindrance brought down the head. When the head was well on the peranaeum, and the forceps were no longer required, I attempted to remove them, and was unable to disengage the upper blade from the right side of the head, whereupon I discovered that the right hand was protruding through the fenestrum of the forceps.

My theory, in these cases is that the right hand, engaging against the side of the face of the foetus in a vertex presentation, with first position, could readily occur from some accidental movement of the mother or foetus and do no harm. But remaining there during the second stage of labor as the head descends and rotation takes place, the elbow, carried well forward over the sternum engages against the rim of the pelvis, or more likely, the promontory of the sacrum, and becomes a more or less formidable hindrance to the progress of labor. The peculiar motion of the head above described may be caused by force transmitted by the hand, as the engaged arm receives part of the expulsive effort.

This is my theory concerning these cases, and I believe they are not at all uncommon. The same condition would as readily occur with vertex presentations, second position, only the left hand of the foetus, instead of the right, would engage. The hand being thrust through the forceps is purely incidental, and may rarely occur in such cases; but in these cases it certainly served to hold the hand in place, and enabled me to make a complete diagnosis. The hand was at no time discernible by digital examination. I can suggest no method of making a positive diagnosis unless it would be to give an anaesthetic and introduce the hand into the uterus for the purpose, a proceeding hardly justifiable in most cases. The tendency of the head to slip back and forth, together with the want of progress, are the best diagnostic symptoms I can suggest.

I would specially note the fact that whenever I feel the peculiar motion of the head above described, or the rotatory motion mentioned with the short cord, I am rarely able to deliver the case without the use of forceps. This has become so much a settled fact with me that I fully expect to use instruments in such cases whatever the obstruction may prove to be.

PUERPERAL INFECTION*

By S. W. Ranson, M. D.

Dodge Center, Minn.

In spite of the oft repeated teachings of science in regard to antiseptic environment during the puerperal period, we find in practice that antisepsis is only indifferently understood and still more indifferently practiced in the average home, while in many it is wholly disregarded. C. S. Bacon makes the statement that "of every one thousand deaths of females between the ages of twenty and fifty years, seventy are due to puerperal sepsis." The same author asserts that puerperal infection still kills more women in the prime of life, women of greater value to their families and the state, than any other cause except consumption. While the above author's experience and statements relate to Chicago, yet undoubtedly each and every practitioner must have had some experience with this disease, and the percentage of cases will depend on the ignorance of the community and especially of the midwives on the subject of asepsis in labor and the puerperal condition.

There are two principal forms of septic infection: sapraemia, or putrid infection, and septicaemia, or septic infection. Sapraemia may be induced by injuries occurring during labor to the birth canal which render the tissues susceptible to putrefactive changes, while foetal death and retained secundines place within the parturient canal a mass of tissue favorable for the introduction and propagation of putrefactive bacteria.

Sapraemia, then, may be said to be caused by necrosis of tissue and the introduction of putrefactive bacteria. These bacteria remain, as a rule, localized, while the symptoms are caused by the absorption of their toxines. The symptoms of sapraemia begin early, frequently as early as ten hours after labor. These are:

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rigors, fever, rapid pulse, foul lochial discharge, constipation or diarrhoea, usually the latter, and not infrequently delirium.

Sapraemia may seriously complicate labor where it is prolonged, and may furnish indications for the speedy delivery of the patient in the interest of both mother and child, as statistics show that twenty-two per cent of children are stillborn from absorption of the toxines while in utero, and the mortality is increased to thirty-five per cent if we take into account the deaths from septic pneumonia, umbilical infections and disorganization of the blood which takes place in the early weeks of infantile life.

Septicaemia is due to the invasion of septic germs, producing constitutional and local symptoms by the invasion of new tissue and the absorption of their alkaloids. The most frequently found bacteria are the streptococci and staphylococci, but the bacillus coli communis, gonococcus and many others are capable of producing septic infection. These bacteria may migrate from the vagina to the uterus, tubes, ovaries or the peritoneum, may enter the blood vessels or lymphatics, and be distributed through these channels to distant organs, or may directly penetrate normal healthy tissue. They may develop endometritis, salpingitis, ovarian abscess, septic peritonitis, cellulitis, lymphangitis, thrombophlebitis, multiple abscess in the uterine walls, septic endocarditis, panophthalmitis, or septic formation in any organ or tissue of the body. Of all these sequelae and complications, panophthalmitis is perhaps the most interesting from a clinical and pathological standpoint.

In October, 1894, I was called to see Mrs. K. She had had an abortion, probably self-induced, about one week previous, which resulted in septicaemia. She had been curetted before I saw her, and septic peritonitis followed the operation in twenty-four hours. Later she had a septic rheumatism in various muscles of the body and limbs. She remained in a critical condition for ten or twelve days, and as the peritonitis began to subside she became suddenly blind in the left eye, and in about twenty-four hours more in the right eye also. The ocular and palpebral conjunctiva began to swell, the lids became thickened and everted, the eye tense and protruding, and pus began to flow from several abscesses in the conjunctiva and cornea. Finally, the discharge began to cease, the eyes to shrink and settle back into their sockets, and she has remained permanently blind, though in other respects she has fully recovered her health. I might say that I had the assistance of an eminent oculist early in this case, and he performed double iridectomy and otherwise assisted me in the treatment of the case.

Wagenman and Leber submitted an eye from a patient, who died during the active stage of the disease, to microscopic examination and found "multiple emboli of streptococci in the retinal vessels, in the substance of the retina and vitreous, also in the vessels of the ciliary body, choroid, conjunctiva, the ocular muscles and in the orbital connective tissue."

When we consider the structure of the eye, we can appreciate the excellent culture media it would furnish to colonies of bacteria, and how rapidly destructive must be their work.

The differential diagnosis between sapraemia and septicaemia can be made:

1st. By observing if there be any necrotic tissue in the parturient tract.

2nd. By the early, rapid onset and active symptoms of sapraemia, due to the absorption of toxines. Septicaemia develops later, is less active and more liable to serious complications.

3rd. By bacteriological culture and examination we can differentiate positively between the two forms of infection.

Gonorrhoea is undoubtedly a fruitful source of infection, sometimes alone being responsible for the sepsis, more generally there being a mixed infection.

Its clinical history is less acute and it is very prone to leave complications, as pus tubes or septic endometritis.

Autoinfection may be caused by an ovarian abscess, a pyosalpinx or a suppurating vulvo-vaginal gland being pressed out or ruptured during labor, thus setting up an acute inflammation.

The profession are divided as to whether vaginal secretions ever produce puerperal infection; the best authorities seem to agree that unless these secretions are specific, purulent or ichorous, they are harmless, as the normal vaginal secretion is acid and antiseptic and pyogenic germs cannot multiply in it or even survive more than one or two days.

PROPHYLAXIS.

It is a disgrace to sanitry science, and to the medical profession, that a disease almost wholly preventable should claim so many victims. Instruction, restriction and regulation of midwives would do much toward stamping out this disease, while instruction of the masses in the hygiene and sanitation of the puerperium would do more. Greater stress should be laid on asepis in obstetrics in the college lecture room, by the medical press and in society discussions, until the dullest and most careless of obstetrical practitioners observes as great care and cleanliness in the management of his cases as the best and most careful surgeons do in their major operations.

No case of abortion should be dismissed until not only the placenta but the decidual membrane is entirely removed. No case of labor should be considered ended until all lacerations are repaired, and all cases must be treated with most rigid antisepsis. Every practitioner of medicine should consider himself a missionary to teach, preach and practice the gospel of cleanliness and asepsis.

TREATMENT.

In sapraemia we should see that the uterus is empty of all foreign putrefactive material. This can be done with the finger, but if you fail to bring everything away by this method, then the dull douche curette is the instrument to be used. Fill up your douche bag or jar with an antiseptic fluid at the temperature of 110 to 115 degrees Farenheit, and proceed to carefully remove all foreign septic material; the stream of aseptic fluid from the douche will remove the débris as fast as it is loosened by the curette. After douching apply a strong caustic solution of iodized phenol or mercury bichloride, 1-1000, and pack with idodoform gauze. If there has been much foul discharge, insert a large drainage tube and pack iodoform gauze around it. The vagina should next be loosely packed in the upper portion around the cervix, and left for from six to twenty-four hours, according to the amount and nature of the discharge. After removal of the packing the vagina should be cleansed by douching or mopping out through a speculum, and the packing and drain replaced, but no further douching of the uterus should be given. As a rule, prompt abatement of fever and all urgent symptoms will follow this treatment.

In septicaemia the conditions are very different. The disease is due to the introduction of bacteria, their multiplication and the action of their ptomaines. They diffuse themselves rapidly through contiguous structures, lymph channels and blood vessels. Hence the attempt to remove them by curettage is useless and sometimes harmful, as back of and beneath the mucous membrane nature usually establishes a barrier of leucocytes, which not infrequently effectually bar the progress of septic organisms from farther extension. Curettage in these cases will break down this barrier and permit the rapid diffusion and absorption of septic bacilli and their products. I have seen more than one case of mild septicaemia converted into a malignant and rapidly fatal one by this treatment. I have also seen the temperature rise from 3 to 5 degrees after an intrauterine douche and remain up fro from twenty-four to forty-eight hours, to be repeated again after each intrauterine douche. Hence I want to say with emphasis, the curette or intrauterine douche should never be used in septicaemia unless we have a mixed infection and condition analogous to sapraemia.

The medicinal treatment should be confined largely to supporting the patient and keeping her alive until nature can develop an anti-toxine to destroy the infecting bacteria. For this purpose quinine, alcohol, strychnine and digitalis are indicated, and sometimes nitroglycerine and caffeine. The great tendency to degenerative blood changes and heart failure will contra-indicate the use of the coal tar antipyretics, or cause them to be used with the greatest caution.

The antistreptococci serum and intravenous injection of normal saline solutions have been used with benefit in appropriate cases. The frightful mortality attending hysterectomy during the acute stages of septicaemia should preclude its use or delay it until the case becomes subacute or chronic, and I belive it should then only be done for multiple abscess in the uterian walls. Operations for pyosalpinx, ovarian abscess or abscesses in the cellular tissue should be deferred until they become subacute or chronic, if it can be done consistently with the safety of our patient, and then the treatment should be by extirpation and drainage.

THE CARE OF CHILDREN UNDER TWO YEARS OLD.*

By D. M. Cool, M. D.,

Faribault, Minn.

To redeem my promise to you I will offer some ideas regarding the feeding of children during the first two years of their lives. I presume I shall not say anything new to you that are present, but I shall consider some of the means in common use, especially in the feeding of young children, both before and after weaning.

I have but little to say regarding the care at and immediately after birth, except that we should not be in too great a hurry to tie the cord. I am in the habit as soon as the head is expelled of seeing if the cord is around the neck, and if so if possible pulling it down, and at the same time carrying it over the child's head, and if I feel pulsation I am content to wait the completion by natural effort on the part of the mother, rendering such support to the perinaeum, etc., as is possible so as to protect the mother as much as I can.

If the child when born does not breath readily I examine the cord, and if I find pulsation,

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*Read before the Section of Obstetrics and Diseases of Children of the Minnesota State Medical Society. June 16, 1897.

I am never in a hurry or in doubt as to its safety. On the other hand, if I do not find the cord pulsating freely, I hasten the delivery and begin artificial respiration as soon as possible. Now comes a time when we are to assume control of the young child, and it is natural for the child to put its fist into its mouth as it is to cry when the cold air first strikes it, and the nurse will begin to prepare food and claim the child needs feeding; and you will be called upon to decide what the first meal shall be. I want you to remember that all things in this world are governed by fixed and immutable laws, and a law is not a law unless there be a penalty attached, which is sure to be paid in case this law is violated. When conception takes place by the union of the two germs, in order to protect this embryo there is a sack formed out of the two membranes, and it is like a small sack rolling around the uterus wherever the force of gravity calls, until towards the end of the third month the placenta is formed, and a more intimate connection between the mother and child takes place.

Up to this time the child has lived upon a fluid secreted by the lining membrane of the uterus, and it could not live on anything else; it is the law and must be obeyed. Now the afterbirth is formed and the foetal circulation is set up, and the child has made an advance in life and cannot live longer upon the food it has been having, but it must be the blood of the mother; and here again the law must be obeyed. This is the food and not anything can take its place. This continues until the completion of gestation, when the child is born and to a certain extent becomes an independent being. But do you for a moment think this governing law has been withdrawn? that this little helpless being can live on anything that may suggest itself to the mind of the mother or nurse, neither of whom has any knowledge of physiology and its laws?

It would seem so if you go into the sick or lying-in room. How many are there who pay any attention to what is fed to the baby? The fact is this law does not cease to try at least to throw around us all its protecting influence as long as we live. Nature has furnished the mother two glands endowed with the power of secreting milk suitable for the support and development of this child. Now the first secretion of the mammary glands is not really milk but a colostrum, which has the appearance of being thinner than milk, but when examined under the microscope is found to contain beside the milk globules proper a larger number of irregular globular or oval bodies termed colostrum bodies. They are more yellow and opaque than the true milk globules, and contain a large amount of oily matter. Now the law says the newly born child shall have this colostrum for the first day or two and then gradually the milk secretion is perfected. Do you suppose you can violate the law without the penalty being enforced? I think not.

Now what is usually done at such times, while the doctor sits by and gives it little or no thought? Frequently a teaspoonful of cold water to keep its mouth from getting sore; then we see a little whisky and water with cracker steeped in it; then cow's milk reduced with two parts of water when the law says the child cannot for a day or two take even its own mother's milk if fully formed. What shall be the substitute if any is used at all? A little cream, with twenty or thirty parts of water to one of cream, not even this if there is anything in the mother's breast.

Supposing the mother dies or has tuberculosis, or for some reason cannot nurse her child. I shall not consider the mother who will not nurse her child because society has a greater claim, or because it is easier for her to raise the child by hand; she is not worthy of consideration, and if she in the near future has the privilege of decorating a little mound in the near by church-yard, is not worthy of sympathy, and her child is to be congratulated on its early escape from such care as she will give it.

Where the mother can not nurse her child, what should its food be?

The only substitute is cow's milk. In my opinion there is nothing else that can be safely used. It contains all of the constituents needed for the growth and development of its body, and so far as I am able to judge is the only substitute within our reach that does contain everything the child requires for its support.

Here we are confronted with a problem easy of solution but not generally understood. Practically cow's milk contains nearly three times as much cheese as mother's milk, less than as much again of butter, about one third less of sugar and less water. Butter and sugar as well as water are essential for the welfare of the child. Casein is also necessary, but in small quantities; it is the muscle-making or nitrogenous principle of the milk, but during the first few months of the baby's life it has no particular use for muscle, as it does no muscular work: true it should develop this tissue slowly, so that by the end of the year on the average it can walk; but we are talking about its earlier period of existence. The proportion of casein in the cow's milk is as 100 to 105 of butter, while in the mother's milk it is 100 of casein to 170 of butter. Now change these proportions so as to conform to that of the mother, and you have solved the problem. I have said there was three times as much casein in cow's milk, and we must make it conform to that of the mother.

All sorts of means have been devised to get rid of this excess of cheese, and we are told it differs from that of the mother's milk. I would like to ask any one present to tell me in what chemical component it differs. It is composed of carbon, oxygen, hydrogen, nitrogen, phosphorus, sulphur and iron, and the same equivalents of each element are in one kind of milk as in the other. It differs only in amount and not in quality. For a more extended analysis of this subject I beg leave to refer you to a paper read before this association at its regular meeting held at St. Paul, in 1888.

I believe the child until the coming of the double teeth to be strictly a carniverous animal, so to speak, and it should never have amylaceous food of any kind. It is not possible for a child to digest starchy food until it has double teeth, and as a rule these make their appearance between the 18th and 24th months of age.

Conjointly with these come the salivary glands, and up to this time the child has no saliva containing ptyaline, and consequently cannot convert starch into sugar; this then becomes a source of irritation and diarrhoea is frequently the result. Feed the baby meats, eggs, oysters, and if obtainable ripe fruit up to the full development of the molar teeth, or at least until it can masticate and insalivate its food. At about one year of age if the child has done reasonably well it can take clear cow's milk, and should have this a part of the time in order to relieve the mother in part of the drain upon her so often consequent upon long nursing.

If the mother be a healthy woman and can stand it, she had better nurse her child until it has all of its first or deciduous teeth.

RAILWAY SPINE*

By A. C. Wedge, M. D.

Albert Lea, Minn.

I have been requested to present a paper on the subject of "Railway Spine." I shall proceed to do so very briefly from the standpoint of a country surgeon. I do not wish to commit myself when I use the words "railway spine," for, as a matter of fact, I do not believe such a disease exists. In times past, and but a short time since, the terms "Erickson's disease," "concussion of the spine," "railway spine" and "traumatic neurosis," have been used to designate a disease, or a set of symptoms, the result of supposed railway injury. The terms are absolutely meaningless, as far as diagnosis is concerned. One writer says: "For years the term 'concussion of the spine' was employed to describe a jumble of actual lesions, subjective symptoms, psychoses, errors of diagnosis and attempts to defraud." Neurologists and medical expert witnesses have used one or all of these terms to designate a peculiar set of neurotic symptoms that follow supposed injury to the spine without any apparent gross lesion. There was supposed to be concussion of contusion of the cord, lacerations of membrane or hemorrhages within the spinal canal, and it was maintained that in a large number of cases the symptoms did not show up for weeks or even months after the injury.

I will not maintain that there are no cases of real or actual injury of the spine, or actual lesions of the vertebral column and its contents presenting immediate and definite signs of their existence. Almost every surgeon has met with cases of this kind. Railway surgeons have become convinced that concussion of the spine with secondary degeneration is a myth, and today the terms "concussion of the spine," "Erickson's disease" and "railway spine" have been dropped.

I take the position that there can be no serious injury of the cord or its membranes without the signs being immediate; that being the case, what have we left? A certain vague, abnormal condition of the nervous system denominated "traumatic neurosis," by some claimed to be the result of shock. It has been maintained by medical expert witnesses before the courts that this condition, denominated "traumatic neurosis," indicates some disease of the contents of the spinal column, or at least a morbid condition of the nervous system which is permanent. The truth or falsity of this opinion can only be proved by clinical observation. I quote from an article in the Railway Surgeon of Aug. 13, 1895, by Dr. Bevan, of Chicago:

"Experimental researches, frequently reported, show that when an animal is dropped 25 feet so as to strike on the buttock or spine, a great variety of injuries can be produced:—fracture of the base of the skull, fracture of the spine, gross lesions of the cord, rupture of the spleen, liver, etc., but never an injury of the cord without immediate and definite signs of gross lesions followed by secondary degeneration." Clinical experience shows us that the cases of actual lesion of the cord present definite and immediate signs of their existence, and that secondary degeneration does not follow traumas which do not at the time give definite and immediate evidence of their existence. In spite of the fact that thousands of cases of so-called "Erickson's disease" are on record, post mortem examinations have never shown secondary degeneration following injuries so slight that definite signs of gross lesions were not at once evident.

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*Read before the Section of Nervous Diseases of the Minnesota State Medical Society, June 16, 1897.

Medico-legal study shows that the supposed cases of "Erickson's disease" recover, as a rule, rapidly after the existing causes of litigation, etc., have been removed. Dr. Bevan had a rare opportunity for clinical observation in the care of the injured in a railway accident that occurred on the road for which he was chief surgeon. A passenger train, while running twenty miles an hour, suddenly stopped while on a trestle which gave way, and the train containing 256 passengers, tramps and trainmen, dropped twenty feet. Here was a chance for concussion in almost any organ you might select. There were 156 injured, four killed outright and two afterwards died from the effects of injuries. The injuries from this accident were numerous, and it is hardly worth while to enumerate them; there were cuts, bruises, fractures, dislocations, etc., but with the exception of the above mentioned all recovered. In the settlement of the claims of the injured, many of those hurt claimed "concussion of the spine," and the claim was seriously made in thirty-five cases, supported by medical testimony in twenty-four. A careful record was kept of all of these, and their subsequent history was carefully noted, and every one of them fully recovered, and the recovery was very rapid after settlement.

We are all very familiar with this class of cases as they appear as claimants in court. Their appearance indicates to the jury and spectators, and even to the doctor, that they are suffering from the effects of some grave injury, but they all recover very soon after the case is settled, unless there was positive evidence immeditely after the receipt of injury that there was a gross lesion.

This has been my personal experience, and I have observed a great many cases during the past twenty-five years. The older members of the Society will call to mind that thirty or thirty-five years ago we did not know or hear of these peculiar cases known as "railway spine" or "traumatic neurosis." Many of you have observed that of late years this unique condition does not always originate in a railroad accident, but a defective sidewalk has brought about the same dire condition, and municipalities have been mulcted in heavy damages to pay for an imaginary disease. It is possible that when we come to learn that we have to help pay the bills, that we will not be so ready to testify to the woeful results of the supposed injury.

Most of these cases are really cases of traumatic psychosis, and "the ignorant physician, the partisan physician, the partisan neurologist or partisan medico-legal expert" is more responsible for the patient's condition than is the injury.

I have had but little time to prepare this short paper, and you will observe that I have not attempted anything scientific. I leave that for the neurologist. I have simply stated a few plain facts from my own standpoint, largely the result of my observation and mostly for the purpose of bringing out discussion on this all important subject.

THE NECESSITY FOR PUBLIC URINALS IN LARGE CITIES.*

By E. D. Abell, M. D.,

Farmington, Minn.

I propose to introduce, briefly, for the consideration of the Section of Public Health, a subject which interests many people, and to which no allusion has ever been made in our meetings when I happened to be present. The subject is the necessity of public urinals in large cities. Many men, and especially elderly men like myself have often experienced the great annoyance of a desire to urinate in closely built streets and thoroughfares, and the embarrassment of dodging down alleys or behind out-buildings to find a place, out of public view, to relieve themselves.

In a city like Minneapolis or St. Paul, for instance, cities ambitious to attract all kinds of reputable public gatherings from other parts of the country, and where strangers collect by thousand for various public functions and parades, the want of some convenient place to retire for the relief of the often pressing calls of nature is felt very keenly, and it is necessary, it seems to me, as a public health measure in a city anxious to secure to strangers and others all the comforts practicable for their enjoyment and pleasure.

These urinals should be placed at convenient distances in the most crowded parts of cities, with signs indicating their use sufficiently plain to be understood, and still so worded as not to be repulsive. They need not be very expensive structures; they are often built of lattice work, and painted. Any architect could suggest suitable forms for each locality.

The sinks, of course, should connect with the sewers, so that all excreta would be directly carried off.

These institutions are common in Eastern cities; some in Boston have quite an attractive appearance; they are placed in all city parks and public squares, where crowds oftenest congregate. The larger cities of Minnesota have expended large sums, both public and private, to render themselves attractive and comfortable to strangers, and others who may be sojourning in their midst, and it would seem that the public urinal was almost the only thing wanting.

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*Read before the Section of Medical Education, Jurisprudence and State Medicine, of the Minnesota State Medical Society, June 16, 1897.

Being an old man, and having business in Minneapolis, and being afflicted with senile polyuria, I have experienced a great deal of distress, sometimes, before I could find relief. Dining at a restaurant one day, I inquired of an official the way to the water closet. "Turn to the right," said he, "up three flights;" and I had to hustle up those stairs at a gait quite undignified for an octogenarian, and was barely on time at that.

The first time I was ever in the new court house, being unacquainted with the localities of the building I felt a call, and seeing a lawyer-looking gent coming into the corridor, I asked him the way to the water closet. He sized me up rather quizzically, and probably taking me for a green one, thought me a good subject for a joke. "Take the elevator for the tenth floor," said he, likely thinking I looked in a hurry. As I stepped into the elevator, said the boy, "Up, or down?" "Up," I said, "to the tenth floor, water closet." "Oh," said he, "the water closet is down one floor," and so it was. I was glad I was not on the tenth floor with polyuria.

I hardly know whether the matter under consideration is a fit theme for state legislation, or whether it more properly belongs to municipal control, and under the management of the board of health of each city, but it seems to me evidently a necessity that should receive sanitary attention without delay.

On frequent occasions, there are public parades where thousands are in the procession, or standing on the streets for hours, and the ranks and crowd are largely composed of out of town people, to more or less of whom a convenient public urinal would be a great blessing in time of need. We, as physicians, can any of us call to mind cases where commencing catheterism, with its serious sequalae, was induced by too long restraint from urinating.

It will perhaps be said that most large blocks and business houses are furnished with private "toilet rooms," or urinals, but who, especially if a stranger, wants to step into a store or office, where he has no other business and inquire for their private water closet?

I think I have shown by my own personal experience and the testimony of others to the same effect that the public urinal is a proper subject for consideration by the Section of Public Health, and a necessary accessory to public comfort in large cities; much more might be said connected with the subject, but this brief paper seems sufficient to call the attention of the Section to its discussion by members not octogenarian, as I am.

A BRIEF HISTORICAL SKETCH OF A FEW EIGHTEENTH CENTURY PHYSICIANS AND SURGEONS IN FRANCE AND ENGLAND. THE BRUNONIAN SYSTEM.

By Franklin Staples, M. D.

Winona, Minn.

It cannot be said that progress was not made in practical medicine and surgery during the eighteenth century period of theoretical schools and teachers. At the beginning of this century French surgery was in the ascendency, and Paris afforded the best opportunities for study. Montpellier and Paris had long attracted students from England and other countries. Louis XIV. ruled France for more than half a century, from A. D. 1661 to 1715. During his reign France engaged in four great wars: the war of the Spanish Netherlands, a war with Holland, the war of the Palatinate and the war of the Spanish succession. The army service afforded opportunities for study, practice and improvement in surgery. The leading surgeons for the first half of the century were Dominique Anel and Jean Louis Petit. Anel was an army surgeon, and gave an account of the military surgery of the day. He operated for aneurism by ligature. He first probed the lachrymal duct and invented a minute syringe for injecting the lachrymal sac through the puncta lachrymalis. The name of Anel is still given to the lachrymal syringe and probes.

Jean Louis Petit, (1674-1750) was in the army, invented the screw tourniquet, improved the circular operation in amputations, and did much in the Academy of Surgery to elevate the standard of scientific medicine and surgery.

Georges Mareschal was surgeon to the Charité Hospital and first surgeon of Louis XIV. in 1702.

Jean Méry was surgeon of the Hotel Dieu. He first made the suprapubic cystotomy.

In the latter half of the century were Pierre Joseph Desault and Francis Chopart, whose names have come to us, the former in the bandage for the fractured clavicle, and the latter in the operation on the foot known as Chopart's amputation. Desault introduced the gum elastic catheter, the straight amputating knife and the wire ecraseur.

Other French surgeons of the times were Gabriel LeClere, of Lisle, who mentions the Hotel Dieu method of stopping bleeding arteries by vitriol buttons, and Rene Jacques Croissant de Garengeot, who introduced new methods of operation for nasal polypus, hare-lip and strangulated hernia. He used the canula in tracheotomy.

Antoine Louis was professor of physiology in the Academy and surgeon of the Charité in 1757. He was a learned historian and editor.

Jean René Sigault in 1768 proposed to the Royal Academy of Surgery the operation of symphysiotomy as a substitute for the Cæsarian section.

Jacques Daviel (1696-1762), Antoine Ferrein, Pierre Guerin, Jean Janin and Francois Pourfour da Petit made valuable improvements in the anatomy and surgery of the age. Petit improved the operation for cataract, and gave his name to the canal of Petit. A German author speaks of Jacques Daviel as a pioneer in ophthalmology in France, as was von Graefe in Germany.

IN ENGLAND AND SCOTLAND—THE BRUNONIAN SYSTEM.

In the latter half of the eighteenth century, about the time of England's war with its American colonies, there arose a system of medicine which came to be called the Brunonian system from the name of its founder, John Brown. The biography of John Brown is in brief as follows: He was born in Dunse, a village of Berwickshire, Scotland, in 1725. His father was a weaver. He was said to be an apt scholar in early youth. He struggled with poverty, was an usher, at one time had to leave school and work as a reaper, became a tutor in Edinburgh, studied theology and returned to Dunse as an assistant teacher. In 1759 he was again in Edinburgh, translated a thesis into Latin for a medical student, became a student of medicine, earned his living by making translations, composing dissertations and holding medical quizzes for the students. He began to be intemperate, married in 1765, and opened a boarding house. Cullen, then a professor in the university, assisted him financially but refused to procure for him a position in the university. Brown now elaborated his theory and taught it in private lectures. He received the degree of M. D. from St. Andrew's University in 1779. He was twice imprisoned for debt, and was twice bailed out by his pupils. He was called to important positions in Berlin and Padua, but was prevented from accepting the same by his dissolute habits. He died from the effects of opium in 1788. His principle work was "Elementa Medicinæ" (1780).

The Brunonian system was one beautiful in simplicity, and like the preceding systems, a philosophy rather than a science. By it the body was a passive machine, and the means of life was a quality termed "excitability." Life was produced by the action of stimuli on the excitability. A moderate action and effect constituted health; an insufficient or excessive action was the whole of disease. All diseases are sthenic or asthenic according to whether the excitement is carried above or left below the normal standard. All excitement or action is at the expense of bodily wear; hence death results finally from the wearing out of the body, if not sooner caused by too great a depression or elevation of the excitability. Brown regarded most diseases as asthenic, hence stimuli were the more important remedies. His therapeutics were as simple as his theory of disease, and he arranged his remedies in a single class, from such as had the highest stimulating power to those of the lowest, placing opium at the head of stimulants, as follows: Opium, camphor, ammonia, musk, alcohol, active exercise, stimulant food, warmth, passive exercise, low diet, cold, purgatives, bleeding. The latter of these being unable to stimulate to a normal standard, were regarded as debilitants.

The Brunonian system found some support in England, less in Spain, extended to Italy, thence to France and Germany; and its influence was felt in America, where Benjamin Rush is said in a way to have indorsed some features of the doctrine. Nevertheless it met with opposition in all countries. Cullen was teaching a more advanced pathology, therapeutics and practice in Edinburgh, Stieglitz and Pfaff were the principal opponents in Germany, and the system of Hahnemann had its place. Yet the influence of the Brunonian system extended farther into the medicine of the nineteenth century than that of any other, unless that of Hahnemann be excepted; this, however, has lived more in an undiscriminating popular support than in that of a scientific study and knowledge, and the progress of the nineteenth century has been retarded rather than aided by its existence.

It is said that the practice of Brown, because of the mistakes made by its adherents, cost as many lives as did the wars of Napoleon. This was undoubtedly an exaggeration. The theory and practice of Brown suffered its decline, because the time for a better diagnosis of disease had come from advances in the knowledge of pathology and improvements in ways and means. About this time the works of Cullen and the two Hunters were enlarging the domain of scientific medicine in England and Scotland; in Italy Antonio Scarpa, whose name has come to us, was teaching anatomy at Modina; and Edward Jenner had discovered the means of immunizing the human body to the contagion of small-pox by vaccination. Morgagni had taught local pathology, and Auenbrugger at Vienna and Lænnec in Paris were teaching local diagnosis; and "observation", rather than "reflection" only, was furnishing the material for a more rational and a better practice in the different departments of scientific medicine, looking towards what has appeared especially in this latter part of the nineteenth century.

A colored boy died recently in New York state as the alleged result of hypnotism, he having been repeatedly experimented upon by a number of amateurs and students of mesmerism. The experts who testified at the coroner's inquest were rather of the opinion that hypnotic experiments were dangerous to the subject.

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FORMALDEHYDE.

No self respecting medical journal could fail to have, sooner or later, an article of some kind about the popular antiseptic that goes commonly under the name formaldehyde, but it is known also as formalin and formol. By whatever name it be called, it seems to smell equally sweet in the nostrils of the writers for the medical press, where it has received a "boom" that must make the heart of the manufacturer rejoice, and is calculated to lead the members of the medical profession to think that the ideal antiseptic has been found at last.

Commercially and for medical purposes formaldehyde appears in the form of a forty per cent. aqueous solution of the gas formic aldehyde, CH_2O, which is the vapor of methyl, or wood alcohol, deprived of two atoms of hydrogen by incomplete combustion. The gas is easily liberated by the application of heat, and if the enthusiastic accounts given may be trusted it will totally supersede sulphurous acid gas as a disinfectant for dwellings, vessels, mails, etc. As an example of what is claimed for it may be quoted the report of two Frenchmen, MM. Bardet and Trillat, who undertook the disinfection of a room containing three hundred cubic metres in which were placed articles of wool, cotton and other fabrics previously inpregreated with virus of various kinds. It was found that the conversion if one litre of methyl alcohol into formol every hour for six hours was completely destructive to germ life within the apartment, so that injections of cultures obtained from the infected articles produced no affect upon animals susceptible to the kinds of virus experimented upon. This was a good practical test, and worth a great deal of inference from the germ destroying powers of the agent as shown by the usual laboratory experiments upon which most of the current methods of disinfection are insecurely based.

For the disinfection of instruments, the hands, the field of operation, etc., formaldehyde has the advantage over creolin that its solution is clear, and over the bichloride that it does not not corrode and is not a systemic poison when applied externally. A one, or at most two per cent. solution is the strength for general disinfection; concentrated solutions when applied to the skin produce a necrosis that is unaccompanied by the usual signs of inflammation.

An important characteristic of formaldehyde, and one that renders it extremely valuable for the irrigation of infected surfaces, is its power of penetrating the surface of wounds, or of the mucous membranes, diffusing itself readily through living or dead tissues. Advantage is taken of this property in using it for the irrigation of the urethra in gonorrhœa and of the bladder in cystitis. It is also useful in blenorrhœal and catarrhal affections of the vagina and uterus. For these purposes it should be much diluted, about one part to five hundred of water, but instillations may be made into the urethra of solutions of five or even ten per cent.

THE OYSTER has recently been maligned by a writer in *Modern Medicine and the Bacteriological Review*, which first quotes the cases of typhoid fever traced to eating oysters and then goes on to call these shellfish "scavengers," to which the typhoid bacillus is a tidbit, the liver of the oyster being characterized a poison trap in which are stored away great multitudes of bacteria, and in particular the germ upon which typhoid fever depends. These and other absurdities are exploded by Dr. George C. Buchanan, of Henning, Minn., in an article in *Science*, in which it is shown that the habitat of the oyster is a clean rocky bottom, and that he lives upon minute particles of organic matter that are suspended in the water. The cases of typhoid traceable to oysters have been clearly shown to be due to planting them temporarily in beds at the mouths of rivers or in harbors, where sewage carried by the current was caught within the shells of the animals and swallowed in eating the oysters raw. A little supervision of oyster beds by boards of health would entirely remove all danger of contracting typhoid from oysters.

REPORTS OF SOCIETIES.

MINNESOTA VALLEY MEDICAL ASSOCIATION.

E. D. STEEL, M. D., SECRETARY.

THE SIXTEENTH SEMI-ANNUAL MEETING, MAY 11, 1897. The President, Dr. J. WILLIAMS in the Chair.

On motion roll call was deferred until the afternoon session.

The minutes of the previous meeting were read by the Secretary and on motion stood approved.

The report of the Executive Committee was next called for and was as follows:

We your Committee take pleasure in reporting favorably upon all the candidates for membership now before the Society, viz:

Dr. JOHN ROGERS, of St. Paul, a graduate of the University of Minnesota.

Dr. BURNSIDE FOSTER, of St. Paul, a graduate of the Harvard Medical School.

Dr. G. G. EITEL, of Minneapolis, a graduate of the Minnesota Hospital College 1888, Bellevue 1891.

Dr. G. FISCHER, of New Ulm.

Dr. W. H. POWELL, of Kasota, a graduate of the College of P. & S., N. Y., 1875.

Dr. MARY BASSETT, of St. Peter, a graduate of the University of Minnesota, 1895.

Dr. W. D. FLYNN, of Red Wood Falls, a graduate of the Rush Medical College, 1869.

Dr. THOMAS SULLIVAN, of Springfield, a graduate of McGill.

On separate motions the Secretary was instructed to cast the unanimous vote of the Society for each of these names and they were declared elected by the President.

Dr. HELEN HUGHES and Dr. L. W. KRUGER, being visiting physicians were on motion invited to take part in the deliberations of the Society. On motion the Society adjourned to 1:30 P. M.

The Society was called to order at 1:30 P. M.

The Committee on Entertainment of the State Medical Society made the following report:

Your Committee would respectfully report that we have perfected our plans to entertain the State Medical Society on the second evening of the session by a banquet at the Saulpaugh with a short program of toast, preceded by an informal reception. On motion this report was adopted.

The Society then listened to a paper by Dr. J. W. ANDREWS, of Mankato, on

SOME OF THE MINOR AILMENTS OF THE STOMACH AND THEIR REMEDIES.

See page 291.

The discussion of this paper was opened by Dr. D. B. COLLINS, of St. Peter.

Next followed a paper by Dr. H. D. VALLIN, of St. Peter on

MEDICAL BACTERIOLOGY.

This paper was illustrated by cultures and microscopes.

Dr. IRA BISHOP, of Mapleton, read the next paper entitled

HYDROCELE.

Dr. JAMES, of Mankato, next reported a case.

Dr. ELLA B. EVERETT, of Mankato, also reported a case of cocaine poisoning in an infant of four weeks.

On motion the Society extended a vote of thanks to Mr. Snow, landlord of the Saulpaugh, for his courtesy in furnishing the place of meeting.

On motion the Society adjourned.

The following names are now before the Execution Committee for membership in this Society:

Dr. L. W. KRUGER, of Mapleton, a graduate of the University of Minnesota 1896. Passed State Board in 1897.

Dr. HELEN HUGHES, of Blue Earth City, a graduate of the University of Minnesota in 1896. Passed State Board in 1896.

Dr. H. M. MORTON, of Minneapolis.

Dr. CHAS. L. GREENE, of St. Paul, a graduate of the University of Minnesota.

The following members were present at the meeting: Drs. J. E. Moore, D. B. Collins, J. H. James, L. W. Kruger, W. W. Holden, C. F. Warner, Helen Hughes, F. N. Hunt, H. M. Workman, G. I. Smart, J. W. Daniels, Ira Bishop, H. D. Vallin, John Rogers, J. W. Andrews, J. Williams, W. Jacoby, Wm. Frisbie, H. O. Tomlinson, E. J. Davis, F. L. Durgin, C. F. Kohler, Ella B. Everett, W. H. Powell, Dr. Benham.

BOOK NOTICES.

A System of Practical Medicine. By American Authors. Edited by Alfred Lee Loomis, M. D., LL. D., Late Professor of Pathology and Practical Medicine in the New York University; and William Gilman Thompson, M. D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the New York University; etc. Volume II. Illustrated. New York and Phila: Lea Brothers & Co. 1897. [Price, $5.00 per Volume].

The second volume of this system deals with diseases of the respiratory and circulatory organs, of the blood, kidneys, bladder and prostate gland. These subjects are treated of in special monographs by men who are recognized as leaders of medical science in America, including the well known names of Loomis, Whitworth, Fitz and Tyson. Particular attention is given to the subject of treatment, and many formulæ are published to show the actual manner in which medicines are recommended to be given.

The complete work stands as a leading authority upon general medicine as practised and taught in the United States, and is the best as well as the latest book of the kind that has been offered to the medical profession.

Reference Book of Practical Therapeutics. By Various Authors. Edited by Frank P. Foster, M. D., Editor of the *New York Medical Journal* and of Foster's Encyclopædic Medical Dictionary. Volume II. New York: D. Appelton & Company. 1897.

Those who are so fortunate as to possess the first half of this work will be more than usually gratified at the appearance of the second part, because they have had an opportunity to put the book to a practical test and to find out by experience how very convenient it is for reference and how often there is occasion to consult it. Its encylopædic character is such that it furnishes all the information ordinarily needed upon any subject treated in its pages, whether of therapeutics or materia medica, and it has the great advantage that it is not limited in its range to remedies that are official, but includes all the newest remedies and remedial agents.

A cheap way of preparing malt extract is in use at the Boston Dispensary and is described as follows: Three ounces or three heaping tablespoonfuls of *crushed* malt mixed well with half a pint of cold water; allow it to stand ten or twelve hours in the cold; decant carefully and strain through three folds of muslin; squeeze the barley grains a little through the muslin to add to the food value of the preparation. If it is to be kept some time, in order to prevent fermentaion we must use as an extracting medium, cold water, and 12 to 20 per cent. rectified spirits, the higher percentage being necessary in warm summer weather. The barley costs from 80c. to $1.00 a bushel, so the expense of the preparation is very slight. It is cheap, and is as efficient as the higher priced articles. By reason of the rectified spirits it is still further a stimulant to digestion.

NEW INSTRUMENT.

A NEW PERMANENT SUPRAPUBIC DRAINAGE TUBE.

By Chas. F. Denny, M. D.

St. Paul.

The difficulties of satisfactory permanent drainage of the bladder above the pubes are too well known for any long discussion. Any form of apparatus that will simplify this disagreeable condition of affairs cannot but be of interest. The best tube known to me intended for that purpose is the "Broome Hard Rubber" which is intended to be plugged and unplugged at will with a stylet plunger. In the case I used it on I found that nothing short of steady drainage would give relief from tenesmus, so the plunger could not be used and I was forced to attach rubber tubing to the end of the drainage tube, and conduct that to a leg urinal during the day, and at night conduct it into a bottle over the bedside. This was done for about six months, when the inconvenience of deposits of urinary salts became great, and it at last became plugged so tightly that it ceased running and no efforts on my part could break up the concretions. I then set to work and developed the following idea which was further elaborated for me by Dr. Geo. S. Monson, D. M. D.

DESCRIPTION.

a. Pure gum rubber tube which passes entirely through metal canula and out at *b*.

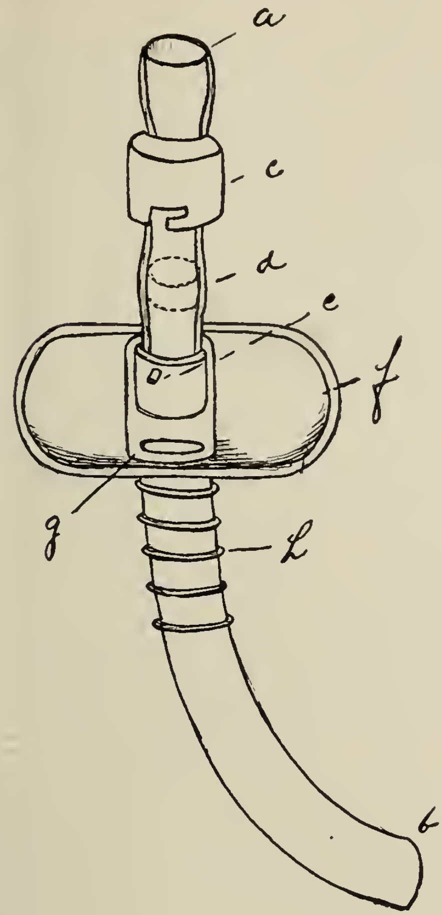
c. Metal button or cap which pushes inner ring *d* on upper end of canula and fastens on *e*, securely fastening rubber tubing and rendering leaking impossible.

f. Abdominal guard plate.

g. Fastening plate for tape lines.

h. Thread on canula for wound to granulate on.

The tube is constructed of silver, save the fastening plate which is of aluminum.



The ease with which our tube can be cleaned, and the lightness of the apparatus is a source of comfort to the patient. The rubber tubing when worn out can easily be replaced by a fresh piece of tubing. There is absolutely no danger of stoppage of the tube from urinary deposits, for it can be immediately cleaned by simply pulling out the rubber tube.

The ring *d* inside the rubber tube is a small metallic ring which dilates the tubing so it fits the end of the canula. The cut description will render the rest clear.

These tubes can be made either short curved or straight and can be utillized for other forms of abdominal drainage to advantage. The sliding fastening plate and coupling-caps were developed for me by Dr. Monson, who made the first tube for me.

Believing the tube can be used for many purposes of drainage in the abdomen or bladder where long continued drainage is desired, is the excuse I offer for presenting this to the profession.

486 Endicott Arcade.

NOTES.

CONSERVATISM IN THE TREATMENT OF DISEASES OF THE PELVIC ORGANS IN WOMEN.

In the March issue of the *University Medical Magazine*, Drs. S. Weir Mitchell, Wharton Sinkler, Charles K. Mills and others in discussing the relation of nervous disorders in women to pelvic diseases said: "We have never seen a case in which ablation of the ovaries and termination of menstruation cured an epilepsy, and in all our life have met with only four reflex epilepsies, none of which were from uterine, ovarine or tubal diseases, and we are inclined to think that some at least of the cases classed as epilepsies of ovarian origin are in reality excessively violent hysterical convulsions, and we conclude that insanity is aggravated by the menstrual epoch whether normal or not, but that it is very rarely caused by that alone. A great deal of uterine and ovarian disease should escape the knife by the use of patent medical treatment —no grave surgery of the pelvis should be allowed without medical consultation," and by the conservative administration of Diovburnia, a uterine tonic and alterative, nervine and antispasmodic, in these opinions they voiced the sentiments of the great army of specialist and general practitioners.

FERRATIN IN TUBERCULOSIS.

Dr. W. T. Parker, in a paper on "Normal Horse Blood Serum in the Treatment of Tuberculosis," read before the Section of State Medicine at the June, 1897, meeting of the American Medical Association, speaking of the treatment of tuberculosis says:

"In those cases where tuberculosis has been successfully treated by therapeutic methods, iron has been the most valuable remedy. As everyone knows the preparations of iron are very numerous, some of them positively harmful, others inert and useless, while a few are capable of being readily assimilated. Of this kind, Ferratin is one of the new remedies recommended by the committee of revision for adoption into the new fifth edition of the Russian Pharmacopœia (*Chemiker Zeitung*, 31, 1897).

"This is an organic iron compound of albumen and tartrate of iron, forming a definite iron albuminic acid; it contains seven per cent. of iron, is readily absorbable, does not constipate and has no untoward effects. On the testimony of its discoverer and others, it is identical with the natural ferruginous element of food, absorbed in the system and stored in the liver and other organs as a reserve iron for blood formation. (*Journal American Medical Assoc.*) Lately this preparation has attracted considerable attention, not only in Europe but in this country, so much so that its future success would seem assured."

THE COMING STATE FAIR.

The dates for the Minnesota State Fair this year have been fixed from Sept. 6 to 11, both inclusive. The grounds and buildings at Hamline, midway between St. Paul and Minneapolis, are being put in first class shape, and the way the entries are coming indicates the most successful fair in the history of the association. The premiums are larger and attractions greater than ever before. The railroads deliver stock and all exhibits at the gates of the grounds and return exhibits free. All the railroads will make one fare for the round trip. It will be a week of rare profit and amusement.

CARNIVAL OF POLARIS.

During State Fair week from Sept. 6 to 11, Minneapolis will out-do herself by her "Carnival of Polaris." This will be a series of evening entertainments and street pageants free to every one who cares to witness them. There will be the coronation of the King and Queen of the Carnival; a street parade with magnificent and costly floats, on a par with the Mardi Gras of New Orleans and the Veiled Prophets of St. Louis; superb fire works, a run of the fire department, etc. The run of the fire department will be something unique, as the entire department will turn out with the engines fired up and the run will be as realistic as if going to an actual fire. It will be a sight even residents of the city have never seen in real life, as the full department is never called out at the same moment for actual service.

LACTOPHENIN: ANALGESIC AND ANTIPYRETIC.

Dr. Charles M. Watson, of Florence, Ala., reportes briefly in the *Alabama Medical and Surgical Age*, July, 1897, on his successful use of Lactophenin, quoting these cases from practice.

"A lady about 50 years of age was suffering with an attack of dysentery. Her blood was impregnated with bile pigment to such an extent that I feared icterus as a result or complication. Such cases are always troublesome, and I treated this case as I do other cases accompanied with biliousness. For the fever, restlessness, thirst, insomnia and pain I gave eight grains of Lactophenin, and its effect was so satisfactory that I will use the old phrase and say that it acted "like a charm." I was greatly pleased with the result obtained from Lactophenin in this case.

"'The next case in which I used Lactophenin was that of a girl, ten years of age, who had a temperature of 104 degrees, which was attended with great nervousness. In fact, the nervous symptoms were such that I feared convulsions. I gave her four grains of Lactophenin, which was repeated, when her fever was reduced to normal and she became quiet and comfortable."

WORTH REMEMBERING.

MESSRS. JOHN CARLE & SONS,
New York City.

GENTLEMEN:—

It affords me pleasure to inform you of my high estimation of the value of Imperial Granum in a recent case of obstinate vomiting of pregnancy. For many days at a time my patient could retain practically nothing in the way of nourishment until the Imperial Granum was tried, when the stomach immediately became more tolerant and nutrition was rapidly regained—and at this writing, four weeks from the time she began its use, she is still relying almost exclusively on it for nourishment.

It is safe for me to say that in the future I shall depend on the Imperial Granum when its use is indicated, and with best wishes for your success, I am, Yours very truly,

——— ——— M. D.

Physicians can obtain samples of this most valuable prepared food free, charges prepaid, on application to John Carle & Sons, 153 Water Street, New York City.

FOR SALE.

A Wimhurst Electrical machine, with nickel plated trimmings and oak case. This machine is in perfect condition, and is valued at $250. I will sell the machine, with a Crook's tube and a Fluoriscope, at a large discount.

Address J. H.
Care of the LANCET.

Dr. I. A. Partridge, Warren, Pa.: I use Eucalyptol (Sander & Sons') in an atomizer combined with liquid alboline (a petroleum preparation), with excellent results in nasal and bronchial catarrh. I think highly of this preparation.

A PURE WATER.

Endorsed by Physicians.

The Indian Medical Springs water is a positive preventive for typhoid fever, if used exclusively. Also a cure for rheumatism, kidney disease, eczema and all of the allied diseases of the bladder and stomach. It acts especially upon the gastric juices of the stomach, aiding the assimilation of the food, and producing new blood, which no medicine will do.

It is of a superior character, and has no equal as a mineral water, and as such we recommend it to all readers who desire the best medicinal water in the world.

The Indian Medical Spring Water is sold as low as any other water. For prices, etc., call upon, or write to

THE INDIAN MEDICAL SPRING WATER CO.,
404 Masonic Temple, Minneapolis.

ORIGINAL ARTICLES.

TUMORS OF THE BLADDER.*

By James H. Dunn, M. D.

Minneapolis.

During the past year five cases of vesical tumor came under my observation, and for several years previously an average of two or three cases per year have presented themselves. Clado ("Tumeurs de la Vessie," Paris, 1895), states that inquiry among the different specialists occupied only incidentally with these tumors indicates that they each meet with four or five cases per year, while M. Albaran (evidently especially interested in vesical neoplasms) observed personally fifty cases in three years, but was able to collect only two hundred cases in the literature of twelve years. Ultzmann estimated that vesical neoplasms form about three per cent of the cases of bladder diseases. This certainly seems high, unless we understand by this, three per cent of primary vesical disorders, in which case it might well be, since it is universally conceded that the great majority of bladder diseases are, strictly speaking, secondary. Further, Ultzmann was one of those who (doubtless with right) regarded strictly primary vesical diseases as rare. Several attempts have also been made to estimate the proportion of neoplasms of the bladder to those of other structures and organs. While such statistics are, for obvious reasons, far from accurate, the results of these studies indicate a fraction of one per cent of all neoplasms to be primarily vesical. This fraction, as obtained from different tables, varies from one-third to nearly two-thirds of one per cent.[x] In short, view the matter from whatever standpoint we may, we shall find vesical tumors neither great rarities, nor yet of daily occurrence even in the great hospitals and clinics. They are just frequent enough to keep us on the alert in certain obscure bladder cases, and to occur now and then in the practice of most busy general practitioners and surgeons; yet so rare that very few men even in the whole world have such a practical experience in their management as many members of this Society could show in most other operative work approaching this in the difficulty of a perfected technique.

The advances of recent years in the pathology, in methods of prompt and exact diagnosis, and in the operative technique of vesical tumors have been very great, even in many respects approximating precision. In the nature of the case these advances have not so attracted the general attention as have those of the more common surgical affections, of which so much is written and said, cases of which may be observed by the score in post graduate schools, and the operative technique of which it is the fashion to acquire, sometimes it might seem even at the sacrifice of more useful, practical and remunerative, if supposedly less ambitious, knowledge. A limited experience with these cases has led me to believe that a discussion of certain cardinal principles of the subject might prove both interesting and profitable. For the most part the profession at large fail to advise prompt interference in the early course of the disease when only radical treatment can, as a rule, be scientifically instituted, but urge operation after infection has rendered a proper removal impracticable. Too much time is often lost in making a diagnosis, and the importance of avoiding infection is even yet insufficiently appreciated. Such patients are often examined hastily, without much preparation and without much satisfaction. I am often asked to make a cystoscopic examination on the spur of the moment and at a single session, which is neither safe for the patient nor satisfactory to the examiner. In most cases, to make a safe and thorough diagnosis sufficient to act upon, the patient should be put at the disposal of the examiner for a few days, so that every detail and feature of the case may be carefully made out, as opportunity presents.

Much diversity of opinion has prevailed as to the relative frequency of benign and malignant neoplasms in this region. Some authorities regard the proportion as about equal, but most of those coming under my observation have been malignant. It is certain that great confusion has prevailed in the classification and description of vesical tumors. This is owing to the peculiar tendency of most vesical neoplasms to assume a papillary or villous character. This feature of these growths has very practical interest. The vesical mucosa, excepting that of the trigone, differs from all others in the absence of papillae, yet its neoplasms are rarely smooth. They, for the most part present an irregular surface covered by sullies giving a varied aspect. Some are simply framboesoid. Others may resemble a sea-urchin or tuft. There are those resembling a stone covered with varied and multiple vegetation. In fine a whole category have a surface comparable to a cauliflower, presenting fissures and clefts dividing them into a great number of lobes, and uniting in the same broad base. The fine papillary vegetations uniting by tufts at the mucuous surface may alone represent the disease, in which case there is no tumor, properly speaking. But on the contrary the same group of vegetations may be implanted upon a wall of which the whole thickness is infiltrated by the neoplasms; the villosity in that case is but the superficial decoration of a tragic affection hidden in the depths of the vesical wall. These villosities "resembling aquatic actinia growing on the rocks at the bottom of the sea," vary in length from those scarcely visible, even when placed under water, to two or three inches in length, and are equally variable in form, being flat, cylindrical, digitiform, conical, en masse, simple, bifid, multifid, etc.

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*Read before the Section of Surgery of the Minnesota State Medical Society, June 18, 1897.

[x] Williams, in analyzing 13,824 consecutive primary neoplasms from the London hospitals, found 0.65½ per cent vesical.

They are composed of an adult or embryonic connective tissue axis with one or more vessels and clad with an epithelium analogous to that of the bladder. Sometimes the connective tissue is so meager that Rindfleisch held that the epithelium is even attached directly to the vessels. Whence the tendency to this formation in the bladder, an organ which lacks a papillary structure? Though the locality in the wall of a hollow viscus toward the cavity of which is the direction of least resistance doubtless plays a rôle in the form assumed by vesical growths, particularly as regards pediculation and the tendency to grow into the bladder, it is believed that a reversion to the embryonic allantoid tissue from which the bladder is developed and which is villous, is the essential cause of their papillation. It is probably to this peculiarity of bladder growths that is due the well proven tendency of benign vesical papillation to soon or late become malignant, since permanent embryonic reversion in cells is a characteristic of malignancy. Possibly certain benign neoplasms of other tissues more often change their character than we are accustomed to hold, but this characteristic seems to be more marked and certainly better proven for vesical than for other tumors. Vesical neoplasms also vary exceedingly in their relations to the walls of the bladder; some spring from its surface by a distinct pedicle and others, though more sessile, develop into the cavity rather than infiltrate into the submucous tissues. Yet others infiltrate broad and deep. While there is no very clear line separating these growths into two distinct classes upon this basis, the custom of Guyon to speak of vesical tumors as "cavitaries" and "parietaux" is of the greatest importance, the former including those that grow into the cavity with limited and superficial involvement of the bladder wall, and the latter describing those which infiltrate the walls deeply and extensively.

The clinical course of vesical tumors naturally varies considerably according to their nature, their location and their accidental circumstances. However, the full history of every vesical tumor is marked by two very apparent events into the three distinct stages:

First. There is a latent period during which no appreciable symptoms are produced and the patient is in blissful ignorance of the disease. This stage is evidently often of considerable duration, especially in certain malignant growths, which do not bleed much and in patients little given to noting slight disturbances of their functions.

Second. The stage of vesical irritation and hemorrhages without cystitis.

Third. The terminal stage in which infection is added to and greatly intensifies all the symptoms of the second period.

Nearly all the benign growths and a majority of the superficial malignant ones, the "cavitaries" of the French, or, in other words, in most of those bladder tumors in which radical operative interference is advisable, the transition from the latent to the symptomatic stage is marked by copious and irregular haematuria, with more or less vesical irritation. Most frequently for a period varying from a few weeks to many months there are spells of passing bloody urine with little pain or vesical irritation.

In one of my cases of carcinoma the first hemorrhage was observed nearly three years before coming under observation, and at irregular but increasingly frequent intervals this passing of bloody urine was nearly the only symptom. Finally, the hemorrhages became more frequent, spells of moderate irritability and considerable pain increasing steadily during the last year, particularly the last three months. On the other hand, even the urine of those cases in which the patients have been driven to seek advice for vesical pain and irritation without having noticed haematuria, will, in my experience, usually be found slightly bloody on microscopical examination. In one case, the wife of a patient thought there was something wrong with her husband, and as she could not get him to admit that he was ill, sent some of his urine to the family physician, who found abundant blood cells a year before the vesical irritation, pain and strikingly bloody and putrid urine brought the patient in person.

Indeed, for practical purposes, haematuria, with pain and vesical irritability varying from very slight to moderate, is the chief characteristic of vesical tumor during the second period of the disease. The suffering and the end begins when the infection makes its advent and inaugurates the third brief tragic act.

We have little data as to the length of the latent period of vesical tumors, the patient being blissfully ignorant of his fate and free from suffering. The second stage is extremely variable, as a rule from one to three years in malignant growths and in benign ones has been known to extend over many years, and except for the great loss of blood in some cases the general health is little affected; the suffering, though variable, is rarely great. The third period is usually comparatively brief, according to my observation rarely more than three to six months, a period which all concerned usually find too long, as the misery of these patients is great. In some the pain, happily, is not great, but urination is frequent, the odor pestilential, loss of sleep, loss of appetite, loss of flesh and the varied complications of urinary sepsis make life miserable until they tardily extinguish it.

The transition to the third stage certainly does soon or late occur spontaneously, but it is a matter of general observation and remark that it is ordinarily long delayed, unless the patient is unfortunately infected by instruments. The bladder invaded by a neoplasm is in a state of receptivity and easily infected, unless every precaution in examination be taken, but unless instruments contaminate or urethritis occur, it is quite remarkable how long infection is delayed.

Hence, the first point I would make in reference to the practical management of these cases is to avoid infecting them. The importance of this precept renders the examination of such a case quite as responsible as an exploration of the abdomen. The second point which I would emphasize is almost as elementary and significant as the first, viz: an early diagnosis is exceedinly desirable, and in our present knowledge not ordinarily very difficult, provided patients and practitioners exercise a little patience, forethought and care, and do not, as is so much the fashion with all concerned in these latter days, run amuck and proceed without deliberation, system or reflection. In the first place, haematuria plays the star rôle in the early symptomatology of those vesical neoplasms which are practically operable, i. e., in nearly all those in which radical operation is advisable. Only the infiltrating growths run a symtomatic course without striking haematuria, and a careful bimanual palpation of the empty bladder will detect the considerable tumor or detect the infiltrated area. In every instance falling under my observation, I have been able to make out more or less distinctly the site and fact of the tumor at least by bimanual palpation alone. This examination should never be omitted and should, after a careful consideration of the history and possibly an examination of the urine, constitute the first step in the examination of a suspected case of vesical neoplasm.

In the smaller and non-infiltrating growths the result of such methods may be negative, but it is especially in these cases that we have a striking history of haematuria. The next and most difficult step is to determine the source of the hemorrhage. If we can settle its vesical source we can usually conclude our diagnosis without great doubt or difficulty. As Guyon has so strikingly shown, both renal and vesical hemorrhages, if abundant, are chiefly due to congestion and the kidney is particularly liable to congestions, so that considerable renal hemorrhages arise from many different causes, and indeed renal congestion may often be sufficient to cause severe and prolonged haematuria in the absence of any appreciable lesion. But bladder hemorrhages, excepting those due to certain retentions (prostatics) indicate an anatomical lesion important and often grave. Hence, I repeat, if we can locate the source of the hemorrhage in the bladder we have but a little further differentiation to arrive pretty accurately at its cause. I shall not wander into the devious path of the differentiation of renal and vesical hemorrhages, now easy and fairly certain without direct and instrumental exploration, again practically impossible without these valuable aids, but assume that we have decided upon the bladder as the probable source of the blood.

We may next inquire, what are the anatomical sources of copious vesical hemorrhages?

1. As already intimated, the retentions of prostatics do, though rarely, give rise to considerable and at times prolonged hemorrhages. The bleeding is exceptionally caused by the distension, and we find the urine very bloody on catheterizing, but more frequently it is rapid depletion which is followed by more or less severe bleeding. The history, together with combined examination, easily gives us the clue to the cause.

2. Certain cystitides are hemorrhagic, but in the early evolution of vesical tumor there is no cystitis. In the intervals of the bleeding the urine is clear and free from pus.

3. In vesical tuberculosis the hemorrhage is usually slight, the irritability great and constant, the urine early shreddy and purulent, the evidence of tubercle in the prostate, vesicles and other organs almost unfailing; and, in fact, the whole clinical course so entirely different, that only in the rarest exceptions could it come into consideration in the differential diagnosis. However, it is said that copious hemorrhages have been observed in the course of bladder tuberculosis even sufficient to excite a suspicion of tumor. I have never met with such. None of the ulcerations of the bladder, unless they open a vessel, cause copious hemorrhages like those typical of the endogenous varieties of vesical neoplasm.

4. The hemorrhage of the calculus is usually entirely unlike that of neoplasms. It is usu-

ally slight, comparatively insignificant, increased by movement and jolting, relieved by repose. After lithotomy, a fragment may sometimes excite considerable and persistent hemorrhage. However, a careful survey of the history leaves little danger of confounding stone with a tumor as a cause of haematuria.

5. The hemorrhage of vesical tumors is for the most part very characteristic. Appearing without apparent provocation, but in reality under the provocation of vesical congestion; hence, often while lying in bed, or from disturbed circulation, at irregular intervals of variable duration, of variable abundance, now total, now initial, again terminal in character. Of course this is not to deny that neoplasms may bleed upon provocation. For example, sudden and violent exertion, sounding, etc. Until the supervention of infection, in the intervals, the urine is clear, non-purulent. The frequency and pain of urination is usually not great, at least at first.

If the general diagnosis of vesical tumors may thus in most cases be made by a study of the symptoms of the urine and a careful bimanual palpation without instrumentation, the diagnosis thus reached is rarely sufficiently certain and detailed for purposes of interference without a careful cystoscopic examination, by which the gross diagnosis may be confirmed and the location, the extent and the form of the growth very accurately established. However, cystoscopy should be the last step in the examination, not the first.

In the female by the method of Kelly this is most easy of performance with little trouble and with practical certainty of result. In the male the procedure is much more difficult, requiring a special instrument, more skill and favoring conditions. The bladder must retain four to six ounces of water and be sufficiently free from blood to give a clear view. The conditions can usually be fulfilled provided sufficient opportunity be allowed. On one day, or hour, a good view may be obtained, while on another failure may result. In those cases in which a little patience does not succeed, or where the bleeding is threatening, the indications are already ample for opening the bladder. Cystoscopy has not failed; it is simply not needed.

My third proposition is that tumor of the bladder having been thus diagnosed, early operative interference should be positively advised, unless for good reasons contraindicated. That is, we should not wait and watch for indications for operation, but operate as early as possible, unless the case is inoperable. In other words, a vesical neoplasm should always be removed unless it has progressed beyond useful removal. The question of benignity or malignancy does not cut much figure. So long as the bladder is not infected and the growth is apparently freely removable, the bladder should be opened suprapubically and the growth excised, excepting only as a matter of course some general conditions of the patient which would preclude the undertaking of an operation of the magnitude of that necessary to properly remove the particular growth in hand, and which would justify the advice of leaving the patient to the natural course of the disease.

On the other hand, when the growth has deeply or widely infiltrated the bladder walls, or when a profound cystitis has been superadded, radical operative interference is no longer worth considering. In many of these cases palliative operations have a useful place. But after some experience in the matter, I would not advise a routine use of even palliative operations. For example, the propriety of opening the bladder came up in a consultation in the case of a man sixty-eight years of age, with a large infiltrating carcinoma of the bas-fond a month before his death. The urine was putrid and micturition pretty frequent, but the hemorrhage was moderate. The bladder emptied itself completely and the pain was not of a degree or character likely to be lessened by drainage or by partial excision of the growth. Neither I nor my colleague could see wherein opening the bladder was likely to relieve his sufferings, nor much, if at all, extend his days. In fact, the latter had scarcely been a kindness unless the former could have been accomplished. In the horrible condition of his bladder, at least a temporary drainage would have been necessary and the dribbling of such urine would have been another cruel addition to his afflictions. As it was, the prompt removal of the urine when passed enabled us to keep the large, well ventilated room endurable, but not without a very disagreeable odor. Granting that opening, scraping and washing might have greatly improved the urine, the state of the bladder was such that by no possibility could it have been again rendered approximately clean, and the patient, already deeply septic, and, as the sequel showed, evidently widely attacked with metastasis, would have been a veritable pest.

On the contrary, when the hemorrhage is severe, especially when clots or partial retentions of urine exist, or when micturition is very painful, it is best to open the bladder freely suprapubically, scrape the growth away freely with fingers, scoops or curettes, perhaps, trim the edges with scissors and carefully char the whole surface with the cautery, put in a perineal drain, and, if possible, close the bladder above. In this way hemorrhage is checked, usually quite permanently, the bladder, if not reclaimed from infection, is at least cleared of a putrid mass and made relatively clean, and in the measure that the foreign mass is removed from the cavity, retention of clots and urine relieved and the secondary inflammation subdued, is the pain relieved.

In short, in the management of vesical neoplasms our duty lies in making a prompt, general diagnosis without infecting the bladder; then in making, or having made, a careful detailed diagnosis as to removability.

2. In urging prompt removal of non-infiltrating growths, or, under favorable conditions, even infiltrating ones if not too advanced, before infection and cystitis render extensive operation hazardous or impossible.

When the walls are deeply and widely infiltrated, but the subject otherwise sound and able to undergo an extensive operation, the resection of larger parts, or even the whole bladder, is still possible, if infection has not yet taken place, but the probabilities that the growth has already reached the lymphatics is so great as to scarcely justify the attempt unless in very exceptional instances.

3. In the third period of vesical tumors, in which, unfortunately, most of my cases have come under observation, it is best to apply with some discretion palliative interference by opening the bladder above the pubes, scraping away and cauterizing the base of the growth, cleansing the bladder and, if possible, reclosing the wound. It is best in general to establish a perineal drainage, unless the conditions render a permanent suprapubic opening advisable. Even palliative operation should be based upon clear and special indications. These are in general to check severe hemorrhages, to relieve cystospasms, to abate sepsis, etc. In very advanced cases in persons of great age, if the hemorrhage be moderate, the pain directly connected with micturition not great and no retention of urine, it is, perhaps, as well to avoid interference and promote euthanasia by opiates, general nursing and care.

SURGERY OF THE NECK.*

By Charles H. Mayo, M. D.

Surgeon to St. Mary's Hospital,

Rochester, Minn.

INCISION OF MUSCLE.

Incision, in surgery of the neck, is by no means of the least importance. Its careful adaptation to the case, giving free access yet avoiding unnecessary or accidental injury with as little disfigurement as possible, is the difference between good and bad surgery.

The incision is best curved, to follow the line of natural creases, as pointed out by Kocher, unless otherwise indicated.

Vertical incisions in the median line are very productive of scar formations, as also are those incisions ending over fixed points.

For this reason curved flaps are best made for large exposures, according to Cheine. The long, transversely curved incision gives sufficient space for the removal of very large struma.

The extensive incision so frequently required for the removal of tubercular and other forms of diseased glands, involving the various triangles of the neck, is best made after the S-plan, one of frequent application in Prof. Senn's clinic, and is preferrable to the Z-incision of Fenger, as the points of flap in the latter incision are more difficult of coaptation.

The margin of long incisions should receive slight nicks at points to serve as skin marks for accurate approximation.

The incision of the neck, involving the region of the platisma, should include this muscle in the flaps raised. The transverse incision for struma should sever the sterno-hyoid and thyroid muscles, which are again united with the deep fascia; additional space is secured by nicking the sterno-mastoids and freely retracting them.

In extensive gland removals we have, in many cases, severed the sterno-mastoid muscle completely in its center, by the Step method, and turned flaps both ways, reuniting by the catgut mattress stitch. This method was later modified by cutting only the clavicular portion or tensor of the muscle at its point of union with the sternal portion, as recommended by Fenger. This relaxes the tension and allows the muscle to be freely dissected and lifted, thus exposing the complete vessel and nerve region of the carotid and jugular.

After resuture we are less liable to atrophy of its lower half. The complete freeing of the sterno-mastoid from the deeper tissues is essential in removal of the gland-bearing fascia.

The omo-hyoid in the lower triangle may be severed, in some cases, but this is seldom necessary. When performed the precaution of marking the ends with black silk is of advantage in its readjustment.

VEINS.

Large veins, such as the external and anterior jugular, are best cut between forceps or ligatures.

All veins cut near their union with large venous trunks should be ligated as soon as isolated, to prevent accidental injury.

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*Read before the Section of Surgery of the Minnesota State Medical Society, June 18, 1897.

A tear in the wall of a large vein may frequently be secured by a lateral ligature, preserving the function of the vessel.

Dr. J. B. Murphy has recently made extensive investigations concerning the anastomoses of large vessels by lateral and end-to-end approximation by suture, and has reported successful cases.

In certain cases of extensive glandular disease in which intimate adhesions to the internal jugular are present, the application of a temporary ligature of heavy silk tied with a bow knot to the vein and removed at the close of operation, will relieve much anxiety of air embolism. After witnessing a death from air embolism such apparent excess of care will not seem like a waste of time.

In operating for the removal of large goitres, the principal difficulty is with venous hemorrhage. This may be readily controlled if the thyroid body is freely exposed to its true capsule, its surface rapidly separated from surrounding tissues by the fingers and the tumor lifted out of the incision, ligating and cutting between ligatures, keeping close to the true capsule, especially beneath the tumor, thus avoiding the laryngeal nerve.

We do not hesitate to cut through a large area of the thyroid tissue, in deciding upon the amount to be removed, if we suture the stump with catgut.

This operation loses many of its apparent dangers when we consider that aside from its four thyroid arteries, its venous return is nearly as constant: the superior and inferior thyroid, the superior and inferior accessory, the thyroidean veins on each side and the superior and inferior communicating veins.

Cystic goitres are approached by the same method, the cyst evacuated and its inner sac removed, similar to an adherent ovarian cyst.

The complete removal of the tongue properly belongs to surgery of the neck, and is best performed by an inverted Y-incision in the median line, through the soft parts, and in the inferior maxilla, its lateral arms serving for the removal of the submaxillary glands and gland-bearing fascia, also the ligation of the lingual arteries. Separation of the two halves of the lower jaw then admits of a free and bloodless dissection.

NERVES.

The superficial cervical nerves exposed upon lifting the platisma are guides to the posterior border of the sterno-mastoid muscle, winding over the posterior edge at about its middle.

The spinal accessory emerges from beneath the muscle three-fourths of an inch above this bundle of superficial nerves, passing backward to supply the trapezius muscle. All of the superficial cervicals may be sacrificed without hesitation, as well as the posterior portion of the spinal accessory, if the gland involvment is extensive.

The spinal accessory should be saved if possible, and this may be easily accomplished if early isolated to prevent its accidental injury.

I have had good results in suture of this nerve, when incised. The loss of its function produces a disagreeable shoulder droop.

If it is injured above its entrance into the sterno-mastoid, the scaleni muscles assume its duties to good advantage. The after results of operation in the upper anterior cervical triangle are often marred by injuring the lower branches of the facial, causing a drooping of the mouth angle.

Injury to the hypoglossal and other deep nerves is usually the result of accident, and due to working very deep through a small external incision. Occasionally such injuries have occurred in the work of our best surgeons, especially in malignant growths and cases where there has been much inflammatory exudate.

A word in reference to the removal of tubercular glands. The idea is not to remove the enlarged glands alone, but the whole gland-bearing fascia, to obtain a cure and render subsequent operations unnecessary.

The rule of Langenbeck to free the dangerous points first is most applicable in surgery of the neck.

Make a slow dissection from the internal jugular and subclavian veins first, then use the scissors freely, lifting the whole fascia with glands intact down to the deep cervical plexus. The upper end of this tissue will be at the styloid process back of the tonsil.

In removal of malignant disease much more extensive mutilation would be justified than in operations upon benign growths, and in such cases we should not hesitate to remove muscles, vessels, nerves and all tissues not strictly necessary to life.

The second rule of Langenbeck to ligate the base of malignant growths early, is applicable here.

DRAINAGE.

We prefer, in the majority of cases, to drain the wound at its most dependent portion, through a separate incision, and strive to secure complete healing of the line of incision as soon as possible.

Drain cavities with tubular drain for two days and spaces with folded rubber tissue from four to six days. In septic cases we may frequently secure primary healing by inserting loose sutures of silk worm gut and packing the wound open for two days, adjusting the sutures upon removal of the pack; the method of Billroth.

Our usual method of closure is by a few interrupted sutures of silk worm gut, dyed in logwood solution, to favor removal, tied without tension, and the careful approximation of skin edges by horse hair sutures, sealing the line of suture with gauze and collodion, applying a moist antiseptic dressing over all.

The subcuticular stitch is of frequent service in preventing suture scar.

This method of closure will secure a large proportion of primary unions. Should suppuration occur, the frequent changing of moist boracic acid dressing under oiled paper soon secures a dry granulating wound.

PURPURA HEMORRHAGICA—SECOND ATTACK—DEATH ON THE FIFTH DAY FROM INTRACRANIAL HEMORRHAGE.*

By J. B. McGaughey, M. D.

Winona, Minn.

The general practitioner of medicine is rarely called upon to treat a case of purpura hemorrhagica of sudden development. The disease, comparatively rare in all forms, is not very infrequently met in connection with, or as a sequence of, the exanthematous fevers or wasting diseases, such as dysentery or entero-colitis. The relation, real or supposed, that is alleged to exist between it and rheumatism will not be considered, as there was no history of the patient having at any time suffered from this affection.

A brief reference to various text-books is sufficient to convince any one that an extended discussion of the pathology and aetiology of purpura, however interesting, could not prove to be very profitable, as the causes and exact pathology are so involved in obscurity that little of positive value pertaining to the same has been discovered since the disease was described by Werlhof near the middle of the last century.

That anaemic subjects are more likely to be affected than the strong and robust is fairly established, but it is equally true that the latter may be affected and that anaemia may be an effect in some instances as well as a cause in others. The evidence of microbic origin is too vague and uncertain to be of any positive value. No theory of causation has been advanced which will be applicable to all cases of the disease or even to a majority of the same. The diagnosis is generally attended with little difficulty, as the ecchymoses, irregular in size, generally small, little if any elevated above the healthy tissue, appearing on the surface of the body, but more especially upon the lower limbs, early and clearly establish the nature of the disease.

The treatment of the disease is in as unsettled a state as the pathology, as is shown by the list of remedies recommended. A bare enumeration of this list would consume some time and be attended with little profit. In cases of pronounced anaemia the value of arsenic and iron is well established. The use of various astringents is recommended, any of which are probably useful in some cases and all of them may fail in severe forms of the disease.

The prognosis may be said to be favorable, but unfortunately this is a rule to which there are pronounced exceptions, as may be seen by the report of the following case, which possessed features of so unusual a nature that it seems to be worthy of record:

Mrs. ———. Aged 37. Native of U. S. Mother of two children, aged about five and seven years. Date of first visit, March 24, 1897, at noon. The patient gave the following story: Her mother died after years of suffering from rheumatic arthritis, which had rendered her almost helpless for the last few years of her life. Father killed by accident. No history of other constitutional disease.

A little more than one year previously Mrs. ———, then a resident of a distant city in this state, suffered from a severe attack of purpura hemorrhagica, in which her life was seriously threatened from the menorrhagia which occurred at the menstrual period. After an illness of four or five weeks, convalescence was established and she eventually regained her usual health, which was fair but not robust. Early in February, 1897, she made a visit to California, where she remained six weeks, enjoying excellent health during the entire time. On her return from California she reached St. Paul early on the morning of the 23rd of March. The trip was unattended with any trials and had been well borne. At St. Paul it was found that her train made close connection with that which she wished to take to Winona, and no time was allowed in which to procure breakfast. She reached Winona at noon on the 23rd of March and went at once to her hotel, suffering from headache, caused, as she supposed, by her long fast. She ate a substantial dinner and slept the greater part of the afternoon, awakening with less headache and somewhat refreshed. During the night she was restless and was annoyed with headache, which was not severe. On the morning of the 24th there was slight epistaxis, and she found that blood in small quantities appeared in the mouth. A few hours later numerous dark spots appeared on the limbs. At this time it was decided to send for a physician.

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*Read before the Section of Practice of Medicine of the Minnesota State Medical Society, June 17, 1897.

At noon I found her with a fair pulse of 70 and a normal temperature. There was pretty free epistaxis and frequent spitting of blood. Examination of the mouth revealed the presence of a number of dark spots upon the mucous membrane of the mouth and upon the dorsum of the tongue, from which the blood was oozing. The spots upon the tongue were slightly elevated. A large number of spots varying in size from one-eighth to one inch in diameter were found upon the limbs. They were most abundant around the knees and from these joints to the metatarso-phalangeal articulations. Headache was not severe, but there was an air of restless anxiety about the patient which indicated serious disturbance of the nervous system. The bleeding from the mouth and nostrils was in a great measure controlled by the application of a solution of antipyrin. Ergot and aromatic sulphuric acid in frequently repeated doses were prescribed. The patient was advised to go to the Winona General Hospital for treatment and care, which, it was believed, could be better furnished there than at the hotel, which was the temporary home of the family.

She entered the hospital at 4 P. M. on the 24th. Her pulse was 60 and her temperature 98 degrees. On one occasion only, after admission to the Hospital, was there any elevation of temperature. This was at 4 P. M. on the 25th of March. She was placed in bed, absolute rest enjoined and a liquid or semi-solid diet ordered. She complained of hunger. Oyster soup, milk and soft toast were relished. She passed a restless night, but there was very little bleeding from the mouth or nostrils. The urine was examined on the morning of the 25th and was found free from albumen and sugar. Its specific gravity was 1.025. She had two moderate evacuations of the bowels during the forenoon, but early in the afternoon a profuse diarrhoea appeared which was controlled by acetate of lead and opium, after discontinuing the acid. About four o'clock P. M. some chilly sensations were experienced, but there was no pronounced rigor at any time. During the night of the 25th she slept some hours, but her rest was frequently broken. Shortly after 6 A. M. on the 26th twelve ounces of bloody urine were voided. This was repeated several times. The lead was suspended and gallic acid was administered freely, which seemed to have the effect of materially reducing the haematuria. Considerable rest was obtained during the night of the 26th and she was fairly comfortable on the 27th. Liquid food in considerable quantities was taken and apparently relished. The following night's rest was fair. At the morning visit on the 28th there was noted a marked improvement in the general condition of the patient. She was cheerful and for the first time expressed hope of a speedy recovery. The oozing from the mouth and nostrils was insignificant, the haematuria was greatly reduced and there was entire freedom from headache. I was compelled to be absent from the city during the day, and upon returning at five o'clock P. M. was surprised to find my patient unconscious, with complete paralysis of the left side and partial paralysis of the right side. Her husband had visited her during the forenoon, remaining until 12:30, at which time she was cheerful and comfortable, and apparently in excellent condition. She took some soup and milk for dinner, fell asleep for twenty minutes and awoke at 2:30 P. M., complaining of pain in the chest, which was speedily followed by intense pain in the head and vomiting, after which she gradually became unconscious. There was no voluntary movement after four o'clock. Death occurred at 11 P. M. on the 28th of March, after an illness of little more than four days' duration. The heart continued to beat for a number of seconds after the respiration had ceased.

Intracranial hemorrhage, whether from the pia mater or in the substance of the brain or in the ventricles, in purpua hemorrhagica, is of rare occurrence, as few cases have been reported. In some works on the practice of medicine there is no reference made to it; in others it is barely mentioned, but in the majority of works it is dwelt upon at sufficient length to place the practitioner upon his guard in making a prognosis in this disease, in which recovery in uncomplicated cases is the rule.

A PRELIMINARY REPORT UPON THE BACTERIOLOGICAL EXAMINATION OF THE CORTEX AND CEREBRO-SPINAL FLUID IN FORTY-SEVEN CASES OF INSANITY.*

By H. A. Tomlinson, M. D.,

Superintendent of St. Peter State Hospital.

St. Peter, Minn.

This preliminary report of the results obtained from the routine examination of the cortex and cerebro-spinal fluid, bacteriologically, in all cases dying and coming to post mortem examination in this Hospital, is made now because the systematic report which I expected to make has had to be postponed.

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*Read before the Section of Medical Education, Jurisprudence and State Medicine, of the Minnesota State Medical Society, June 16, 1897.

These routine examinations were begun in the spring of 1895, after the appearance of a paper by Prof. H. C. Wood, of the University of Pennsylvania, in which he suggested that the form of mental disturbance known as acute delirious mania might in some instances be of bacterial origin. Since that time other similar reports have been made, and in the "Medical Record" for August 1, 1896, Dr. W. L. Babcock, of the St. Lawrence Hospital at Ogdensburg, N. Y., reports a case of acute delirium in which he found streptococci and pneumococci in the cerebro-spinal fluid both before and after death, and he was disposed to attribute the inflammatory condition of the brain to the presence of the bacteria as a specific cause.

Our clinical work in this Hospital, and the microscopical study of the changes in the cortex found after death in cases of acute insanity, in relation with the diseased conditions present in the chest cavity and abdominal viscera, have led us to an entirely different conclusion, viz: that the presence of microörganisms in the cerebro-spinal fluid and cortex involved their preëxistence in some other part of the organism, and that their presence during the course of acute mental disturbances was not relational or causative, but associative. The details of this association of bacteria with the changes found in the brain after death occurring during the course of acute mental disease form the subject of a paper which I have in course of preparation, and I will confine myself in this paper to the simple relation of the findings from the routine bacteriological examination of the cerebro-spinal fluid and cortex.

Knowing how easily the results obtained by these examinations might be vitiated by the contamination of the fluid during its removal, and also the liabilty of the brain itself to contamination from handling, special precautions were taken, and the fact that in a certain number of cases the cerebro-spinal fluid and cortex were found to be sterile, would indicate that these precautions had been fairly successful.

Altogether forty-seven examinations were made, and the form of mental disturbance present at the time of death varied from simple excitement or depression to stupor or prolonged terminal dementia. It was thought best to make the cultures in every case, without regard to the presence or absence of active mental disturbance, thus giving the results attained a greater significance than they would otherwise have. The cases given were as follows:

1. F. A. S. Acute delirium. Cause of death, acute nephritis. Streptococci in the cerebro-spinal fluid.

2. N. S. Acute excitement. Cause of death, typhoid fever. Typhoid or colon bacillus in the cerebro-spinal fluid. The distinction could not be made.

3. A. H. Acute stupor. Cause of death, chronic parenchymatous nephritis. Growth of colon bacillus from the cerebro-spinal fluid.

4. T. H. Paretic dementia. No active mental disturbance. Cause of death, pneumonia. Spirillum of Obermeier found in the cerebro-spinal fluid.

5. R. G. General paralysis. No active mental disturbance. Cause of death, hypostatic pneumonia. Frankel's pneumococcus grown from the cerebro-spinal fluid.

6. S. J. Paretic dementia. No active mental disturbance. Cause of death, acute uraemia. Cerebro-spinal fluid sterile.

7. A. O. General paralysis. No active mental disturbance. Cause of death, cerebral hemorrhage. Staphylococcus pyogenes aureus and bacillus pyocyaneus grown from the cerebro-spinal fluid.

8. G. K. Senile insanity. No active mental disturbance. Cause of death, chronic interstitial nephritis. Bacillus pyocyaneus grown from the cerebro-spinal fluid.

9. P. L. Senile insanity. No active mental disturbance. Cause of death, chronic interstitial nephritis. Fraenkel's pneumococus grown from the cerebro-spinal fluid; also stained in section in the pituitary body.

10. H. B. Senile insanity. No active mental disturbance. Cause of death, pulmonary oedema. Cerebro-spinal fluid and cortex sterile.

11. M. B. Senile insanity. No active mental disturbance. Cause of death, cerebral embolism. Pure cultures of Fraenkel's pneumococcus from the cortex and cerebro-spinal fluid.

12. A. R. Senile insanity. No active mental disturbance. Cause of death, uraemia. Spirillum of Obermeier found in cerebro-spinal fluid, but it made no growth on culture media.

13. L. N. B. Senile insanity. No active mental disturbance. Cause of death, chronic parenchymatous nephritis. Cerebro-spinal fluid and cortex sterile.

14. A. G. Terminal dement. No active mental disturbance. Cause of death, chronic parenchymatous nephritis. Cerebro-spinal fluid contained diplococci which retained their color by "Gram" but gave no growth on culture media.

15. E. B. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Tubercle bacillus in lung cavity was stained, but inoculation of cerebro-spinal

fluid on culture media gave no growth.

16. A. J. Terminal dement. No active mental disturbance. Cause of death, interstitial nephritis. Cerebro-spinal fluid and cortex sterile.

17. A. T. Terminal dement. No active mental disturbance. Cause of death, lobar pneumonia. Fraenkel's pneumococcus grown from pericardial fluid, but no bacteria were found in the cortex or cerebro-spinal fluid.

18. C. L. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Cerebro-spinal fluid sterile.

19. A. J. Terminal dement. Depressed, marked self depreciation. Suicide by hanging. All organs healthy except the kidneys, which showed chronic interstitial change. The cortex and cerebro-spinal fluid were sterile.

20. O. O. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Smear preparation of lung tissue showed tubercele bacilli, but there was no growth from the cerebro-spinal fluid.

21. T. M. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Bacillus tuberculosis stained in fluid from the pleural cavity, but no tubercle bacilli could be found in the cerebro-spinal fluid.

22. W. N. H. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. The colon bacillus and an unknown spirillum were grown from the cerebro-spinal fluid.

23. J. K. Terminal dement. No active mental disturbance. Cause of death, lobar pneumonia. The staphylococcus pyogenes albus was grown from the cerebro-spinal fluid. The urine contained Fraenkel's pneumococcus.

24. A. D. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Growth of staphylococcus pyogenes albus from the cerebro-spinal fluid. The tubercle bacillus was present also.

25. W. D. Terminal dement. No active mental disturbance. Cause of death, cerebral tumor. Grown of blastomycetes from cerebro-spinal fluid.

26. J. C. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Smear preparations and sections of a tubercle in the cortex of the uncus, showed the tubercle bacillus.

27. N. A. Terminal dement. No active mental disturbance. Cause of death, cerebral syphilis. Blastomycetes were stained in the cerebro-spinal fluid, and grown from inoculation of the diseased cortical area. The syphilis bacillus of Van Niessen was also found in this case.

28. O. J. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Tubercle bacilli in the cerebro-spinal fluid.

29. R. W. Terminal dement. Depressed, with suicidal impulse. Suicide by throwing himself under the cars. Growth of staphylococcus pyogenes albus from the cerebro-spinal fluid. (There was no injury to the head in this case.)

30. R. O. Terminal dement. No active mental disturbance. Cause of death, cerebral tumor. Growth of syphilis bacillus (Van Niessen's) from cerebro-spinal fluid. The same organism was stained in section in cerebral gummata.

31. A. R. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Fraenkel's pneumococcus grown from the cerebro-spinal fluid. Tubercle bacilli were present in the sputum before death and in the lung tissue after death.

32. J. H. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. Growth of staphylococcus pyogenes albus from the cerebro-spinal fluid.

33. M. N. Terminal dement. No active mental disturbance. Cause of death, sarcomatosis. Blastomycetes were stained in cortical sarcomata, and were grown readily from vaginal exudate. No growth from the cerebro-spinal fluid.

34. C. E. Terminal dement. No active mental disturbance. Cause of death, chronic parenchymatous nephritis. Growth of Fraenkel's pneumococcus from the cerebro-spinal fluid.

35. H. I. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. The cerebro-spinal fluid contained Fraenkel's pneumococcus, associated with the bacillus pyocyaneus, and the same bacteria were found in the urine before death.

36. G. P. Terminal dement. No active mental disturbance. Cause of death, lobar pneumonia. Fraenkel's pneumococcus grown from the cerebro-spinal fluid, and was also found in the pericardial and peritoneal fluid, and in lung tissue.

37. K. K. Terminal dement. No active disturbance. Cause of death, typhoid fever. Colon bacillus grown from the cerebro-spinal fluid.

38. W. S. Terminal dement. Complete stupor for a month before death. Cause of death, lobar pneumonia. The bacillus pyocyaneus and Fraenkel's pneumococcus were grown from the cerebro-spinal fluid.

39. B. K. Terminal dement. Depressed, agitated and confused. Cause of death, chronic parenchymatous nephritis, and there was also a purulent peritonitis. The colon bacillus was

grown from the cerebro-spinal fluid and was present in the peritoneal pus.

40. A. C. A. Terminal dement. No active mental disturbance. Cause of death, mammary carcinoma. The bacillus pyocyaneus was grown from the cerebro-spinal fluid and the same bacillus with saccaromyces neoformans was found in tumor and a pleural abscess.

41. F. B. Terminal dement. No active mental disturbance. Cause of death, chronic interstitial nephritis. Fraenkel's pneumococcus grown from the cerebro-spinal fluid.

42. M. B. S. Terminal dement. No active mental disturbance. Cause of death, lobar pneumonia, with pleuritic abscess. Fraenkel's pneumococcus, bacillus pyocyaneus, staphlococci and streptococci were grown from the cerebro-spinal fluid.

43. Terminal dement. Chronic excitement. Cause of death, lobar pneumonia. Fraenkel's pneumococcus found in the cerebro-spinal fluid, and the same organism was grown from the gastric contents during life.

44. H. W. Terminal dement. Noisy and destructive. Cause of death, pleuro-pneumonia. Fraenkel's pneumococcus and the staphylococcus pyogenes aureus were found in the cerebro-spinal fluid, and the latter also in fluid from the pericardial and pleural cavities.

45. A. F. Terminal dement. No active mental disturbance. Cause of death, chronic interstitial nephritis. Streptococci were grown from the cerebro-spinal fluid and also found in the kidney.

46. J. S. Terminal dement. Noisy and destructive. Cause of death, uraemia. The bacillus pyocyaneus was found in the cerebro-spinal fluid.

47. S. P. Terminal dement. No active mental disturbance. Cause of death, pulmonary tuberculosis. The cerebro-spinal fluid contained the tubercle bacillus as did also the pericardial and peritoneal fluids.

By a reference to the foregoing list it will be noted that three of the cases were recent, two of which were acutely excited and the other stupid. In one case where excitement was present, streptococci were found, while in one excited case and the stuporous case, the colon bacillus was found.

Four were cases of general paralysis, and in no two of them was the same microörganism present; yet the mental condition was the same in all of them at the time of death.

There were six cases of senile insanity, manifesting no active form of mental disturbance at the time of death, their condition representing merely different degrees of dementia. In two of these cases the cerebro-spinal fluid was found to be sterile; in two others Fraenkel's pneumococcus was present, while from the other two was grown the bacillus pyocyaneus and the spirillum of Obermeier.

The other thirty-four cases were all terminal dements and manifested no active mental disturbance. In seven of these the cerebro-spinal fluid and cortex were sterile in one an unrecognized diplococcus which stained by "Gram" was found; while in the balance eight different microorganisms were found, and in some of the cases two and three different varieties were grown.

Our clinical experience, coupled with the evidence furnished by these cases, would lead to the conclusion that in any case of illness where microörganisms are present, if the diseased condition is severe or the individual's vitality is low enough to admit of rapid growth and therefore general dissemination of the microörganism present, it will be found in the cerebro-spinal fluid, but why microörganisms should be present in the cortex in some, and absent in other cases, we have not been able to determine, nor the fact that sometimes two or three microörganisms are present in the bodily organs but only one of them in the cerebro-spinal fluid. The pneumococcus is more commonly found than any other form of microörganism, and next to this staphylococci; but a reference to the mental condition of the patients in whom these bacteria are found shows that the presence of these organisms has no significance in relation to the form of mental disturbance, but does bear a more or less constant relation to the bodily disease present.

In those cases in which the cerebro-spinal fluid and cortex were sterile, the bodily disease was of short duration or mild. Of the eight cases in which the cerebro-spinal fluid and cortex were sterile, one was a suicide who was physically in good condition at the time of death. Three were cases of chronic kidney disease where the patient had been in fairly good physical condition up to a short time before death.

Three were cases of pulmonary tuberculosis in whom the disease ran a comparatively short course, and one was a case of pulmonary oedema coming on in an old man soon after a subdural hemorrhage. In those cases in which the pneumococcus (the microörganism most constantly present in meningitis) was found, thirteen in all, the clinical picture varied widely, but in all of the cases some degree of pulmonary congestion was present. In five of the cases there was an acute lobar pneumonia and in another a hypostatic pneumonia. In three the immediate cause of death was nephritis, while in two it was chronic pulmonary tuberculosis, and in one cerebral embolism. In all of these cases the brain changes were found in terminal dementia, and in none of them was there an acute process present.

These observations will be continued, but in order to make them more definite, a detailed study is being made as follows:

Cultures are now made from the cortex, cerebro-spinal fluid, pleural fluid, pericardial fluid, abdominal fluid, and from the tissue of that organ which is found most diseased at the time of death. As a result of our observations so far, the conclusion seems warranted that deductions concerning the pathology of insanity, based upon the examination of the brain alone, are likely to be fallible.

THE VALUE OF THE CYSTOSCOPE IN THE DIAGNOSIS OF DISEASE OF THE GENITO-URINARY TRACT—WITH A DEMONSTRATION OF NITZE'S INSTRUMENT.*

By J. L. Rothrock, M. D.

St. Paul.

Of the many refinements in diagnosis which have been introduced within the last few years for the purpose of solving the difficult problems so often presented by disease, none is more interesting and few are so important as inspection of the bladder.

At one time all attention was concentrated on the microscope, which it was thought would clear up all doubt as to what part of the genito-urinary tract was involved. In fact only a few years ago it was believed that one could be able for instance to tell from what part of the genito-urinary tract the pus or blood which happened to be in the urine came, by the character of the epithelial cells present, a view no longer held by the best authorities.

Indeed many of our modern text books still speak of the ease with which a diagnosis can be made in this manner. A close observation has shown, however, that while in a certain proportion of cases this is true, the microscope will not always give the information desired. For example, the mere finding of tubercle bacilli in the urine by no means tells all we would like to know about the case, namely, the location of the lesion, a point which very materially influences our mode of procedure from a theraputic standpoint. I would not be understood as ignoring the use of the microscope as an aid in the diagnosis of diseases of the genito-urinary tract, for no examination is complete without it. But it has its limits.

Nor is the assistance rendered by a chemical analysis of the urine, as for example the estimation of the quantity of urea, to be lost sight of.

It can readily be seen from the foregoing what advantage inspection possesses. The diseases of the genito-urinary tract are as a rule local in character, involving but a portion of the tract. Yet neither the symptoms nor examination of the urine may give any definite information as to what part is involved. No doubt with these difficulties in mind observers years ago were not wanting who planned to contrive means to explore the interior of the bladder, and we find in the older text books on diseases of women, the advice to dilate the urethra and introduce the finger, and to ascertain by touch the condition of the bladder. This method was soon found unsatisfactory from the fact that considerable violence had to be inflicted in order to introduce the finger, which often resulted in subsequent incontinence of urine from over dilatation of the sphincter muscle, and that the information imparted to the touch of the examining finger, save in a few pathological conditions, was meager and totally out of proportion to the danger. Owing to this fact digital exploration has deservedly fallen into disuse, having given way to less violent and more useful methods.

It is only within comparatively recent years that visual inspection of the bladder has come to be generally applied.

Notwithstanding the fact that Nitze almost 20 years ago devised an instrument by which the interior of the bladder might be inspected, it has been until recently regarded as a complicated and a not wholely practical instrument.

In the meantime numerous investigators, imbued with the spirit of progress and stimulated by the advancing refinement in diagnosis in other directions, have sought to devise an instrument which was at once simple, practical and applicable to the wants of such cases.

Owing to the fact that the female bladder from its anatomical pecularity is so much more accessible than the male bladder, and perhaps also that it is so frequently the seat of disease, it has been made the subject of investigation by most workers in this line.

Simon and Pawlik long ago devised a method of catheterizing the ureters, as a means of determining their patulency and the character of the urine which was discharged from them.

To Pawlik belongs the credit of having first demonstrated the fact that the simple introduction of an endoscopic tube would allow the air to rush in and distend the bladder in a manner analogous to the distension of the vagina when the patient is placed in the knee chest position, thereby allowing its walls to be inspected.

He first made use of sunlight, placing the patient before a window, but owing to the ureliability of this source soon resorted to artifical light and the use of a reflector. To Kelly, of Baltimore, belongs the credit of having first described this method as well as for many points of improvement, most important of which was the adoption of the knee chest position, which together have made this method of examination simple and entirely practicable.

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*Read before the North Dakota State Medical Society, May 26, 1897.

It is scarcely necessary to describe here this method, for no doubt all of you are familiar with its application and I dare say many have had considerable experience with it. By its use, one may after a little practice as a rule directly inspect every portion of the bladder, and sweeping the instrument around be able to note the condition of the bladder walls, inspect the mouths of the ureters and even directly under sight, catheterize them.

It will at once be seen what an immense gain over former methods of diagnosis this must be, when one can at once, for example, say whether the blood or pus, the presence of which the microscope has revealed in the urine, comes from the kidney, bladder or urethra, and at the same time know definitely the character of the lesion causing it.

Not alone do the possibilities of such inspection in the diagnosis of the local ulceration or catarrhal inflammation of the bladder appeal to us, but the accurate determination of the quality of the urine as it escapes from the ureteral opening into the bladder.

Renal hæmaturia and pyuria are thus accurately diagnosed, and the attention directed with precision to the kidney involved. In cases of doubt the soundness or disease of the remaining kidney can be established beyond possibilities of mistake, a point of vast importance when it comes to a question of the removal of the diseased kidney.

The use of this method of inspection, is no less an aid in treatment than in diagnosis. While the ordinary urethritis or cystitis in its less severe forms speedily recovers with slight or often with no treatment, every practitioner must recall cases in which he has been put to his wits ends to know what to do next for his suffering patient. In such cases only a thorough appreciation of the exact nature of the lesion will enable the physician to proceed in a rational manner in the application of treatment.

The attempt to proffer aid without such knowledge is usually to invite failure.

As to the choice of instruments for inspection, it is largely a matter of personal preference when dealing with the female bladder. As regards the male bladder there is no choice.

As my practice has been entirely with female patients, I have used both methods. I soon found that direct inspection by Kelly's method was in some cases unsatisfactory and from this fact was led to try the instrument of Nitze. This instrument consists of a metal tube of the calibre of a No. 22 French scale, bent near the tip at an angle of about 45 degrees similar to a Mercier catheter. In the tip on the concave surface is a miniature incandescent electric lamp, and in the metal shaft just above the bend is placed a prism, which deflects the image so that it may be seen by looking through the telescopic tube, in which are placed two plano-convex lenses to magnify the image.

The instrument which I use has a catheterizing attachment which consists of a mental sheath into which the cystoscope fits and on the upper surface of which is a channel for the catheter. This arrangement possesses some advantage from the fact that after its introduction the sheath may be held stationary while the cystoscope is turned or pushed up or down, just as is the tube of a microscope.

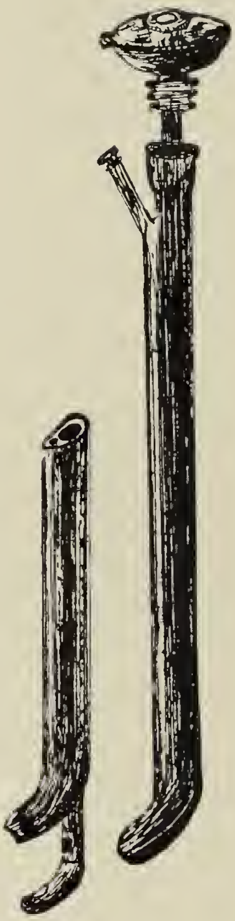
The lamp may be run by an ordinary galvanic battery (about 10 cells are necessary) or better by a portable storage battery. Two conditions are absolutely necessary for its successful use. First, a bladder which will hold about four or five ounces of fluid; second, the fluid in the bladder must be transparent during the examination. The bladder having been evacuated a couple of ounces of a two per cent. solution of cocaine is introduced, allowed to remain for a few minutes and then withdrawn by a suction tube. Four or five ounces or more of boiled water or a solution of boric acid are now introduced into the bladder. With the patient in the lithotomy position one can readily inspect every nook and corner of the bladder, and not only this but with this instrument the ureters can be catheterized with as much facility as by direct inspection with Kelly's instrument.

With regard to the value of this method I have but to quote Skene (whose wide and varied experience with both methods needs no comment) from the March number of the *American Journal of Obstetrics*, in which he says, speaking of this method: "I am sure that it is not claiming too much to say that all structural changes, gross and minute, can be seen and studied far more clearly than by any other method of inspection yet discovered." The great advantage of Nitze's cystoscope over others is that with it one brings under observation a much larger field at one time than is possible with Kelly's instrument.

It is an established fact in physics that in looking through a tube of uniform calibre throughout, at an object close at hand, one can see a field but little larger in diameter than the calibre of the tube. With a No. 14 endoscope in accordance with this one would see a field only about five-eight of an inch in size, whereas with this instrument one constantly views a field more than twice that size.

But in order to use Kelly's 14 instrument it would be necessary to anæsthetize the patient, which, together with the dilatation necessary, makes a rather formidable procedure for so simple a task.

Dilatation of the urethra is never accomplished without the risk of cystitis, and in the light of modern knowlege of the etiology of cystitis we know how much influence slight abrasions of the lining of the urethra have in furnishing the atrium of infection for bacteria, which according to Menge are present in the urethræ of 24 per cent. of healthy women.



NITZE'S CATHETERIZING CYSTOSBOPE.

(ONE-HALF SIZE.)

If a smaller sized endoscopic tube is used an anæsthetic may not be necessary, but the knee chest position is so repulsive and tiresome to most women as to make anæsthesia desired. Again two or more assistants are necessary in the management of Kelly's method especially in case of anæsthesia.

By Nitze's method, with the patient in the lithotomy position one can with little assistance manage the examination, for after cocainizing the urethra and bladder the instrument may be introduced and manipulated with no discomfort to the patient whatever, even though the examination may be quite prolonged, as it sometimes is, especially where the ureters are catheterized.

It may be argued that the presence of bleeding prevents the use of this instrument. I have so far not met such a case, but remember having on one occasion tried Kelly's method with very unsatisfactory results as the field of observation was constantly obscured by the flowing blood.

In order to overcome this objection an irrigator cystoscope has been devised by Nitze, by which a stream of clean water is kept running through the bladder. Skene suggests washing out the bladder with astringents previous to cystoscopy, a method which answers in cases of slight bleeding. In such cases Kelly's instrument offers no advantages over Nitze's.

In the condition of extreme contraction of the bladder, as by chronic cystitis, in which the bladder will not retain the requisite amount of fluid, Nitze's cystoscope cannot be used. Here Kelly's instrument answers the purpose admirably.

From what has been said it will be seen that any one who proposes to work in this line should be familiar with both methods. This means that he should not only possess the instruments requisite for the work, but he should have had considerable practice in their manipulation, and other things being equal the operator will be successful in proportion to his practice.

With Nitze's instrument much practice in manipulation is an absolute essential, and for that purpose I began my work on a phantom, which I regard as indispensable to the beginner. To provide one's self with an instrument and to at once try it on a patient would be equivalent to failure, and no doubt accounts for the slowness with which this instrument has gained popular favor. Of cystoscopy in general Winter says in his "Gynokological Diagnostik" that "cystoscopy has become a diagnostic science not learned without much patient and painstaking practice."

In administering drugs to children the following hints are useful: The substances most easily administered are the tinctures and alcoholic extracts in the form of drops (aconite, digitalis, belladonna, laudanum, etc.), mixed with sweet liquids, as black currant syrup, Malager wine, currant syrup, prune juice, orange juice, licorice, coffee, and sometimes distilled water. Certain powders that are very active may be mixed in small doses with soups which the children take as daily food; thus may be used scammony, bismuth, magnesia. Powders on account of the minute quantity which it takes for a dose, are valuable forms for the administration of drugs to children (scammony, jalap, calomel, santonin, etc.); these can be placed on the child's tongue, and are easily swallowed by taking a sip of water.

SOME COMPLICATIONS OF POSTERIOR URETHRITIS.*

By Burnside Foster, M. D.

St. Paul.

During the last two years there have fallen under my observation a very considerable number of cases of posterior urethritis which, with their various complications and sequelæ, have behaved quite differently from the manner in which we previously expected these cases to behave. This unusual behavior has been according to my experience due, both directly and indirectly, to the extensive use of the bicycle. I am not prepared to say, nor indeed do I believe, that in an individual whose urethra has never been damaged, either by specific inflammation, self abuse, or sexual excess, any positive inflammation can be induced, actual traumata of course excepted, by riding the bicycle with a properly constructed saddle. I am inclined to believe, however, that the next twenty five years will make a considerable change in the average age at which we expect to see the prostate begin to show signs of hypertrophy, in persons who use the bicycle as a daily means of locomotion. The cases I have particularly in mind are cases of posterior urethritis, usually of gonorrhœal origin, which have of late become unusually obstinate and persistent, and which have shown a great tendency to be followed by inflammation of the prostate and seminal vesicles. Prostatitis has always been recognized as an occasional complication of gonorrhœa, but according to my experience it has become vastly more common since the bicycle has come into snch general use. It is a familiar fact that a condition of hyperæsthesia and subacute inflammation of the poster or urethra often exists as the result of masturbation and sexual excess in individuals who have never been infected by the gonococcus. This condition readily becomes intensified by the constant congestion and irritation brought about by the prolonged use of the bicycle, especially if an ill-fitting saddle is used. Already, perhaps, in such an individual we have signs of sexual neurasthenia, a condition too familiar to need description, and we certainly have every thing in the most perfect condition for the conflagration which is to ensue, to light which only the gonococcus is needed as a torch.

Specific urethritis occurring in a case answering more or less to the above conditions, is pretty likely to be followed by inflammation of the follicular and glandular elements of the prostate, and not unlikely to be complicated by seminal vesiculitis.

Another complication of specific urethritis rarely recognized, but important, is inflammation and abscess of Cowper's glands. These two glands, about the size of a small pea, empty into the deep urethra at about the junction of the bulbous and prostatic portions. Such an abscess of which I have seen and opened several cases resembles a urinary abscess with this important difference; in the latter case the tumor occupies the median line while in abscess of Cowper's gland it is on one side or the other of the raphé. The symptoms of prostatitis are well known, and as I havle nothing new to offer in the way of diagnosis I wiil not weary you with a detailed description. It s important to distinguish between inflammation confined to the mucous membrane of the prostatic urethra and that much more serious condition where the inflammation has extended to the glands and follicles of the prostate. In the latter case in addition to the urinary symptoms, we have marked sexual disturbances, priapism painful or frequent emissions and discharge of prostatic fluid after stool. Usually by rectal examination we can detect a painful enlargement, although in some cases this cannot be made out. These cases readily become chronic, and besides the local symptoms, distressing enough in themselves, are very apt to bring about disturbances of the nervous system, sexual neurasthenia and even melancholia. In a few cases that have come under my observation a well defined abscess has formed, which after either rupture or operation has been followed by a speedy recovery from all symptoms. Multiple abscess formation is, however, more common, and furnishes the most difficult of all cases to treat. When this occurs we see frequent exacerbations of all symptoms, often accompanied by chills or fever and a general septic condition, relieved for a time by rupture of a small pus sac, which gives relief for perhaps some weeks only to be followed by a repetition of the same performance. Such a state of things may continue for many months, or in neglected and abused cases even for years. If one or both seminal vesicles becomes involved this can usually be detected by rectal palpation and microscopic examination of their expressed contents.

The successful treatment of these affections of the prostate and its appendages calls not only for detailed knowledge of all the various local and internal therapeutic means, but demands of the physician an infinite amount of tact and patience. In the first place the confidence of the patient must be gained, a task by no means always easy, as these sufferers have generally been the rounds, have been treated and maltreated in all sorts of ways and are apt to be quite familiar with all the various routine methods of examination and treatment. It is wise to begin by encouraging the patient, however desperate the case may seem, to hope for a final cure, if he follows implicitly all directions, but it is also well not to fix any definite time when the cure may be effected.

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*Read before the Southern Minnesola Medical Society, August 5, 1897.

It is hardly necessary to say that exercise, especially bicycling, must be absolutely interdicted, and that abstinence from all forms of sexual excitement must be insisted upon. In acute cases, especially where there is evidence of general involvement of the follicle and glands of the prostate, the patient should, if possible, be put to bed for a couple of weeks, and kept on a liquid or semi-solid diet. Internally, especially where as is commonly the case, the sexual symptoms, frequent erections or painful emissions predominate, I am accustomed to employ sedatives very freely. Bromide of soda or potassium combined with tincture of hyoscyamus and ergot, rectal suppositories of belladonna, icthyol or opium are of great assistance in relieving pain and preventing erections at night. In some cases, and they are more numerous then is generally supposed, a rheumatic or gouty diathesis, as shown by careful investigation of the personal history of the individual and by the presence of an unusual amount of uric acid in the urine, must be combated by antirheumatics such as the salicylates, salol or colchicum and lithia. In all of these cases great benefit is derived from drinking large amounts of bland liquors, preferably between meals, and all medicines should be given largely diluted with water.

The local treatment is in all cases the most important, but unless it is employed in the appropriate manner and above all at the appropriate time, it often does more harm than good. Nothing in the management of these cases requires more judgment and discrimination then to decide on the proper time to begin the local treatment, and it is quite impossible to lay down definite rules to go by. Some patients are so extremely sensitive to even the most delicate and skillful instrumentation, that even after all acute symptoms have subsided the mere use of the endoscope will make things as bad or even worse than before; while others are much more tolerant and may be treated more vigorously. When there exists an appreciable uretheral discharge, with frequent and painful micturition and marked tenderness in the perineum and on rectal examination, it is rarely advisable to introduce any instrument into the urethra. If lavage is used at all, in such cases, the patient should pass water first and the fluid then be allowed to flow into the urethra from an elevation of several feet, overcoming the sphincter vesicæ by hydrostatic pressure and thus filling the bladder, the entire urethra thus being flushed twice. This procedure, however, has its dangers and I have rarely employed it with satisfaction.

During the acute period, besides rest (in bed if possible) and the internal remedies above alluded to, there are several local measures which are valuable and safe. Perhaps the most useful is the rectal psychophore, which the patient can use himself, and by means of which cold, by a stream of ice water, can be applied to the prostate for half an hour at a time several times daily. This usually affords very great relief and often reduces the inflammation very rapidly.

The application of either leeches or blistering agents to the perineum will sometimes be found to relieve the congestion even more rapidly than the psychophore.

Should a distinct abscess form it should be opened as soon as detected and always through the perineum and not through the rectum, although the latter is the most likely spot for it to point; a urethro-rectal fistula being always a most difficult thing to close.

As soon as the acute inflammatory symptoms have subsided we may begin with caution to apply local remedies to the urethral mucous membrane. Through the endoscope introduced as far as the neck of the bladder the prostratic mucous membrane may be examined and nitrate of silver, beginning with a five per cent. solution, may be applied either by means of a cotton swab or by instillation of a few drops through the deep urethral syringe. This procedure may be a little painful, but usually the pain is of short duration and the beneficial effect is soon apparent. It should be repeated, gradually increasing the strength of the solution every third day unless the reaction is too severe. At the second or third treatment I am accustomed to precede the application by passing a full sized steel sound into the bladder, thus putting the mucous membrane on the stretch and perhaps emptying some of the superficial follicles and glands which are distended with pus. While the sound is in place the index finger may be inserted into the rectum and the prostate lying between the finger and the sound may be gently manipulated and massaged. At the end of the treatment a urethral suppository containing iodoform or some other medicament may be left in the deep urethra. In very sensitive patients who rebel against instrumentation of the urethra, a soft rubber catheter may be introduced and the bladder filled with a warm solution of nitrate of silver, 1-5000, and after holding it for a moment the patient may empty the bladder, the catheter having been withdrawn. Nitrate of silver is by no means the only substance which is useful locally in these cases, but it has proved much the most satisfactory in my hands. We may also use solutions of salycilic acid, permanganate of potash, sulphate or chloride of zinc, peroxide of hydrogen and many others. It must not be forgotten that the patient should always pass water before any instrument is introduced.

In cases of chronic suppuration of the body of the prostate it has been suggested to make parenchymatous injections of a solution of trichloride of iodine (1-1000 through the perineum into the gland, using a long, stout hypodermic needle. I have done this in two cases, in one with very satisfactory results. The other was not materially improved and finally recovered only after the evacuation through the perineum of a considerable amount of pus. A prostatic or a peri-prostatic abscess is not always an easy thing to diagnose, and when undetected it may slowly involve the space between the bladder and the rectum and later burrow through the entire pelvic connective tissue, advancing slowly and sometimes remaining undedected for years. Such a condition can only be relieved by operation. The pus can usually be reached by incision through the perineum. I I know of no class of patients more difficult to handle than those with chronic disease of the prostate and its appendages, and one great reason that many of them suffer so long is that through discouragement and despair they will travel from one physician to another, expecting a speedy cure and disgusted at the slow progress towards a cure, which must always be expected. Most of my failures, and they have been many I regret to say, have been due I believe chiefly to my inability to hold the patients long enough. He will always succeed best who in addition to his knowledge, skill and experience possesses the tact, patience and those personal qualities which inspire those who consult him with perfect confidence; and makes them willing to remain in his hands and to follow his directions in spite of slow progress and apparent lack of success.

Lowry Arcade.

INTESTINAL DIGESTION IN CHILDREN.—Huebner thus describes this function: The secretions of the glands of Brunner and Luberkuhn, in addition to those of the liver and pancreas, convert the chyme into chyle. Peptones, sugars and fats pass easily into the blood current, probably because the glandular tissue is so abundant. The mineral salts are not well absorbed, as is shown by the fact that the stools contain the greater part of the amount ingested. The nitrogenous elements, on the contrary, are so well absorbed that no traces of them exist in the stools.

Rectal absorption in the child. No digestive process occurs in the rectum, but the absorption of what has escaped the upper portion of the intestines still goes on. Albumenoids and fats to an extent are absorbed, but of course the proportion as compared with the other parts of the tract is small.

Fæces. Defacation is frequent in infants. During the first week three or four stools a day are normal, and at the end of the second year there are usually two stools a day. After this age there is generally but one in the 24 hours; so that to decide whether there is diarrhœa or constipation it is requisite to recall to mind the normal number of stools at the given age. The appearance and decomposition of the stools vary also according to age. In the new-born child during the first two or three days, the stools consist of the meconium with which the intestines are filled at birth. This is made up of the hepatic, pancreatic and intestinal secretions, and by-substances swallowed by the child, as amniotic liquor, hairs, sebaceous matter. It is always free from putrefaction products, as indol and phenol, and is devoid of bacteria. These, however, soon make an appearance after birth, but differ altogether from those bacteria resulting from the digestion of milk, and they disappear as soon as the digestion of milk commences. The stools of children fed on milk exclusively are of a pale yellow color, semi-liquid and of a stale odor. They contain from 84 to 86 per cent. of water. In health they contain neither tyrosine, indol, phenol or scatol, but they contain bacteria, principally the bacterium lactis and B. coli. If other food than milk is taken other bacteria are present. The bacteriological diagnosis of of stools is at present impracticable, owing to the diversity of opinion of different authors.

Speaking of periodical forms of insanity, Dr. R. M. Phelps says: One of the most common of these periodicities occurs with menstrual function, forming at times a quite true "circular insanity." Even this does little more than afford a hint, however, of an unstable mind, overturned by the nervous and morbid excitation, such as described by Krafft-Ebing as accompanying menstruation. Many of the cases among women have no cause known. It is true, of course, that the periodicities of malaria, of migrane, of epilepsy, furnish some previous experience to blunt our sense of wonder at these things. Such wonder is still farther blunted by noting, after considerable experience, that such cycles may blend with the ebb and flow of sleep and waking, or of winter and summer, or the less regular ones of fatigue and rest; or (in inebriates) of sprees and sobriety, and as well of invasion and recession in fevers and other bodily diseases. And yet the wonder is great. The circulation seems at times affected, but seems wholly insufficient to account for the phenomena.

Dr. Francis Crosson, who has resided at Santa Fé for the last four years has removed to Albuquerque, N. M.

Northwestern Lancet.

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ALCOHOL AND DIGESTION.

The last word has by no means been said upon the influence of alcohol upon the digestive fluids; not content with accepting the statement which uncompromising tetotalers would like to have recognized as an fundamental law that alcohol has an evil influence upon digestion, recent experimenters have gone into the subject with care and precision and have arrived at results that are in many respects surprising, not so much perhaps because they overthrow preconceived opinions as to the effect of alcoholic drinks in this direction, as that they sift the matter further and prove that some harmful effects are not due to the alcohol of the drink but to some other constituent.

Among those who have contributed most largely to recent knowledge of the subject are Chittenden and Hare in this country and Sir William Roberts in England. The latter made a careful study of the matter some years ago, and his results have been more recently confirmed in a large measure by the investigations of Chittenden and Mendel. These investigators have pursued their experiments not with alcohol alone but with the various beverages that contain it, studying separately the three classes of drinks, distilled liquors, wines and malt liquors. The separate study has also been made of the effect of alcoholic liquors upon the three principal digestive fluids, that is the saliva, the gastric juice and the secretion from the pancreas. The results are somewhat complicated, and show at once the absurdity of trying to formulate a single rule which shall apply to all kinds of alcoholic drinks and to all forms of digestion.

Experiments upon the saliva show that the presence of whiskey or brandy to the extent of five per cent. of the digestive mixture has no retarding influence upon the power of the saliva to convert starch into sugar. Rum interferes with this amylolytic action at less than five per cent., and this is found to be due not to any greater proportion of alcohol in the rum but to its greater acidity. Wines are found to exert a powerful inhibitory action upon the saliva because of their acidity, as is shown by neutralizing the acid of wines, when they are found to lose this inhibitory power. With malt liquors the same is true as of wines, that their interference with salivary digestion depends upon their acidity; thus porter exerts a more powerful inhibitory action than does beer or ale. When the acid of malt liquors is neutralized their presence in small amounts increases the amylolytic action of saliva, due to the presence of extractive matters in these liquors.

Upon stomach digestion, alcohol when present in a quantity greater than four per cent. of the digestive mixture is a powerful check. Under this limit the presence of alcohol has some tendency to increase the digestive power of the gastric juice. Sir William Roberts gives the percentage a little higher, but agrees in the main with the statement above given. In their action upon the gastric juice there is little or no difference among the various classes of alcoholic beverages beyond the variations in the amounts of alcohol they contain.

Pancreatic digestion is retarded by all three classes of alcoholic liquors, but not by any means in proportion to the amount of alcohol they contain, wines having a far greater inhibitory power than whiskey, brandy and the other strong drinks. This is due to the greater acidity of the wines and is in proportion to the amount of acid, a sour claret exercising a greater check than a sherry containing twice as much alcohol. Malt liquors on the other hand have but a slight retarding effect upon pancreatic digestion, due chiefly to the presence of extractive matters.

The results above given must be remembered to be derived from laboratory experiments, and so to leave out of account the vital part of the phenomena, showing nothing of the influence of the various beverages experimented with upon secretion, glandular activity and that part of the digestive powers which is under nervous control. It is therefore to be expected that deductions for clinical guidance cannot be drawn *pari passu* from the results given. It is something however to confirm by experiment what has been taught by experience, that moderate quantities of alcoholic beverages do not interfere with digestion. Indeed a proper amount of stimulant, taken at the right time, may improve the digestive powers by increasing the activity of the circulation, without hindering the action of the digestive juices by its local effect. It is a good point to remember, too, that much of the retarding effect upon digestion that has been set down to alcohol is really due to the acidity of the drink, and that to mix soda water or selzer with liquor will make it agree better with the digestion as well as with the taste.

NOTES.

One of the principal events of the late American Medical Association meeting was the exhibition of all kinds of pharmaceuticals and associated products. Among the most notable exhibits was that of **Wm. R.** Warner & Co. who occupied two spaces (one at each entrance) with two magnificient pyramids of elegant pharmaceuticals. Each pyramid rested upon an immense base 10 by 12 feet. The pill globe surmounting the apex made the exhibit just 10 feet high. The preparations exhibited, consisted of pills (all shapes and colors), tablets (hypodermic and compressed), fluid extracts, wines, elixirs, granular effervescent salts, etc., etc. The following specialties also demand mention:

Lithia Tablets. These are indeed perfect tablets, and afford an accurate and convenient method of administering Lithia to rheumatic and gouty patients, as well as to those suffering from renal and vesical diseases.

Tono Sumbul Cordial. This is practically a new preparation, but its therapeutic value demonstrated thus far, indicates that it will have a large prescription sale. It is a palatable combination of Sumbul Root, Iron, Phosphorus, Cinchona, etc., with sherry wine and aromatics as a vehicle. Dr. F. S. Grant writes: "It has marked nerve tonic and stimulant properties, and is a positive heart tonic. From a personal experience with this cordial, I have found it to be a true tonic to the stomach. It certainly promotes appetite, quiets the nerves, and gives a general sense of well being. The ingredients combined with it are most important for the therapeutic effects desired."

Elixir Salicylic Compound. A valuable remedy in acute, subacute and inflammatory rheumatism. The ingredients possess advantages well known to the profession, to whom this preparation is alone introduced.

Bromo Soda, Pancreopepsine, Ingluvin, Parvules (small pilules for frequent dosage) are also excellent preparations in the diseases for which they are indicated.

On one pyramid there were quite a number of medals attractively framed. One of the most interesting portions of Messrs Warners & Co.'s exhibit was a walnut case of bottled pills over which was a sign: "Made thirty years ago and as efficacious today as when made." An investigation of the pills proved the sign correct. The mass was quite as soft as when coated. This evidently verifies the claim that Warner & Co.'s pills are *"Soluble, Permanent, Potent* and *Reliable."* By the way, on the question of the solubility of pills we might reproduce the following letter:

Liberty, Ohio, June 9, 1897.

MESSRS. WM. R. WARNER & CO., Philadelphia.

Gentlemen:—Last winter I unearthed a small vial of your Aloin Granules that by chance had been stowed away for *twelve years.* Having always used your Aloin Granules in my practice I of course used these, and, as far as I could determine, *they were as as efficient as the day they were made.* I tried them on myself several times, with results as good as could be wished for. I have kept a few as a curiosity. They are O. K.

Yours truly, J. H. ADAIR.

It is not at all surprising that ordinary emulsions of Cod-Liver Oil are losing favor with the medical profession, when we consider the fact that almost every emulsion on the market depends entirely for its nutritive properties upon the proportion of Cod-Liver Oil present, the remaining portion being made up of Acacia, Irish Moss and other emulsifying and flavoring agents which add nothing to the therapeutic value of the product, but are, in fact, a burden to the weakened digestive organs of an invalid.

The great value of egg emulsions has been recognized for a long time, but the lack of permanence has heretofore proven an insuperable obstacle to their general use. Messrs. Parke, Davis & Co., however, we are pleased to announce, have succeeded in securing a formula which enables them to prepare a stable emulsion containing 40 per cent., by volume, of pure cod liver oil, emulsified only with fresh eggs and flavored with a fine quality of brandy. No Acacia, no Irish Moss, but Cod-Liver Oil, Eggs and Brandy; every ingredient therefore a nutrient. It justly deserves ethical recognition as the most meritorious preparation of this class now at the disposal of the profession.

THE LOWER FARES TO NEW YORK

and intermediate points over the Pan-Handle Route on the Pennsylvania Lines, via Chicago, are now in effect from principal offices of Western connecting lines. So also the standard fares by the Ft. Wayne Route—which forms a part of the Pennsylvania System—"The Standard Line of America."

There are five through daily trains over the Pennsylvania Short Lines from Chicago to New York and intermediate points—two by the Pan-Handle Route and three by the Ft. Wayne Route. The Ticket Agent of any connecting line will tell you about it, or inquiries will be promptly responded to by H. R. Dering, Assistant General Passenger Agent, 248 South Clark street, Chicago.

Prof. Munde says: "Chronic leucorrhœa can only be curred by the frequent use of astringents together with hot vaginal injections."

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ORIGINAL ARTICLES.

SOME CONSIDERATIONS ON THE SUBJECT OF HYSTERECTOMY, WITH THE REPORT OF FIFTY CONSECUTIVE CASES.*

By Archibald MacLaren, M. D.,

St. Paul.

Although the technique of hysterectomy has been much simplified by Trendelenburg, Baer and Kelley, still it is one of the most difficult of major surgical operations, and one which should not be advised or attempted without the gravest consideration, and the most careful study of the case and symptoms.

In considering abdominal hysterectomy for fibroids, we are all agreed that many fibroid tumors do not call for any operation at all, and many do not demand the total removal of the uterus.

The true conservation of the woman lies in either Martin's ligation of the uterine arteries or in the enucleation of the fibroid, as opposed to either removal of the appendages or to hysterectomy.

Small fibroids which do not produce either hemorrhage, pressure symptoms or considerable pain, do not call for any operation. The woman should be kept upon ergot, which probably does no good, and under careful observation. The danger of suppuration, of calcareous or malignant degeneration is so slight in these small tumors, that we should not frighten ourselves or over persuade our patients into questionable operations.

When, after a more or less prolonged observation, we find that the fibroid is enlarging in size or is producing undoubted symptoms, then we should advise an exploration and enucleation of the tumor if possible. This can frequently be done through the vagina. When there are many tumors, and when enucleation is not possible, Baer's amputation of the uterus should be performed. This is, I believe, unquestionably a better operation than either vaginal hysterectomy with morsellation, or abdominal hysterectomy with the clamp for large uterine fibroid tumors.

The old clamp or soeurre-noeud operation was justifiable only when we did not understand the arterial supply of the uterus, or when abdominal antisepsis was so imperfect as to make the necessary dissection and ligation of the ovarian and uterine arteries dangerous.

The experience of many physicians who have been using Baer's method of performing Schroeder's hysterectomy, has proven that the mortality is no greater, but rather less, than the best results obtained with the clamp. When you consider the shorter convalescence and the decided advantage in anatomical results following the new operation, we can have no doubt as to the superiority of the Baer.

The objection has been made by some operators that the stump of the cervix which is left after supravaginal hysterectomy may take on a malignant degeneration. This statement is, so far as I can find out, without any clinical foundation.

The use of Trendelenburg's posture has greatly facilitated the performance of this operation, as it causes the abdominal contents to gravitate towards the chest, giving a clear field in which we may make the necessary dissection, entirely by sight.

Howard Kelley's suggestion of commencing on the most accessible side and working from left to right, or vice versa, has served to considerably shorten the time necessary to perform this operation, and also to make the performance less difficult.

The use of Boeckmann's dry sterilized catgut still proves most satisfactory in my hands, lessening, I am sure, the mortality, and avoiding the suppuration which sometimes follows months or years after the use of even the finest sterilized silk. Coarse braided silk should never be used in this or any other abdominal operation, because of the great difficulty which nature finds in escapsulating it.

When we come to consider vaginal hysterectomy, we find it recommended for three different conditions; i. e., for fibroid tumors, for bilateral pelvic suppuration, and for cancer of the uterus. In the first class of diseases, as I have already stated, it seems preferable to perform supravaginal hysterectomy, when the fibroid is large, instead of complete removal of the uterus, because the vagina is not deformed, the upper pelvic diaphram is not broken, and the sexual sense is less interefered with.

The Baer is safer than the combined operation because the vagina is so difficult to sterilize.

Vaginal hysterectomy with morsellation for large fibroids is a very difficult operation, and is not infrequently followed by ureteral, bladder or intestinal fistulae, even in the hands of the most skillful operators.

The popularity of vaginal hysterectomy for pelvic suppuration is already on the wane. It never was a rational operation with very few exceptions. It is unquestionably the operation

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*Read before the Section of Gynaecology of the Minnesota State Medical Society, June 17, 1897.

VAGINAL HYSTERECTOMIES.

NO.	NAME.	AGE.	CH.	M.	DISEASE.	OPERATION.	RESULT.
202	Mrs. W. E. S. Dr. J. Camp, Brainerd, Minn. Bethesda Hospital. 6-3-'92.	40	2	0	Carcinoma of cervix and anterior vaginal wall.	Vaginal hys. Silk ligatures. Vaginal wound sutured with catgut.	Recovered. Later discharged silk ligatures. 1894 returned. Treated with ery. tox. Died 1895.
218	Mrs. C. Dr. P. Ritchie, St. Luke's. 10-31-'92.	58	4	0	Carcinoma of cervix and posterior wall. Bloody discharge four months ago.	Vaginal hys. Silk ligatures.	Recovered. No return at present date.
214	Mrs. F. H. H. Dr. Groves, Brainerd, Minn. St. Joseph's. 10-10-'92.	33	1	1	Carcinoma of cervix. Bloody discharge six months.	Vag. hys. One pair forceps. Silk ligature.	Recovered. Soon returned; six months later curetted and cauterized. Died Oct. 1894.
224	Mrs. N. L. Dr. Robillard, St. Joseph's. 12-4-'92.	30	4	0	Cauliflower carcinoma uteri and anterior vaginal wall, filling vag.	Vag. hys. Silk ligatures.	Recovered. Soon returned; Died from recurrence in less than six months.
250	Mrs. J. P. Dr. Martell. 3-8-'93.	26	3	0	Cauliflower carcinoma of cervix.	Vag. hys. Two silk ligatures on vaginal mucous membrane. Rest catgut.	Recovered. Returned in three months. Died in nine months.
285	Mrs. H. R. Dr. Beebe, St. Cloud. St. Joseph's. 6-27-'93.	40	2	3	Carcinoma uteri. Flowing for past ten months. Spotting over year ago.	Vag. hys. Silk ligature.	Recovered. Returned in five months. Died in fifteen months.
385	Miss M. O. Dr. E. Strain, Minot, N. D. St. Luke's.	36	1	0	Carcinoma cervix. Erysipelas tox. for past month.	Vag. hys. Catgut ligature material, dry sterilization.	Recovered.
418	Mrs. E. J. H. Dr. H. Johnson, St. Paul. St. Luke's. 10-13-'94.	51	1	2	Carcinoma of cervix and posterior vag. wall, right broad ligament infiltrated.	Vag. hys. Catgut ligature material.	Recovered. Returned in two months. Soon died.
441	Mrs. B. S. Dr. J. McLaren, St. Paul. City Hospital. 1-5-'95.	44	10	1	Complete procidentia. Susp. carcinoma of fundus.	Vag. hys. by enucleation.	Died on 10th day from aspiration pneumonia. No peritonitis.
505	Mrs. H. K. City Hospital. 7-6-'95.	47	7	0	Carcinoma uteri and vag. walls. Hemmorrhage and pain last four months.	Vag. hys. 2 clamps, 2 catgut lig.	Recovered. Returned in twenty days. Soon died.
533	Mrs. G. S. Dr. Whittemore, Elk River, Minn. St. Luke's Hospital. 9-19-'95.	34	2	3	Car. uteri. Glands of right br. lig. infiltrated. A few removed.	Vag. hys. 1 clamp and catgut ligature.	Recovered. Vesico-vag. fistulæ. Returned in five months. Died soon after.
536	Mrs. J. H. V. Dr. Dunning, St. Paul. 9-28-'95.	40	3	0	Epithelioma of cervix. Hemorrhage for four months.	Vag. hys. Right pus tube removed.	Recovered. Returned in three months. Died few months after.
564	Mrs. McK. Dr. Darrow, Fargo, Minn. Fargo Hospital.	45	sl	0	Suspected car. of fundus, profuse flooding past three months. Curetted twice.	Vag. hys. catgut ligature and suture material.	Recovered. No return at present time.
565	Mrs. J. McC. Dr. J. Lundi, Inskter, N. D. St. Luke's 12-24-'95.	33	0	0	Epithel. of cer. Trachelorr. one month ago by Dr. Phillips. Diag. by Dr. Morton, Minneapolis.	Vag. hys., right ovarian cyst; catgut ligature and sut. material.	Recovered. Five months after operation small granulation found in vag.
582	Mrs. J. C. A. Dr. Keam, St. Paul. St. Joseph's. 1-28-'96.	43	0	0	Probable car. of fundus. Curetted five times in eight months. Profuse hemorrhage.	Vag. hys. Catgut lig. and material. Several small sub-peritoneal fibroids.	Recovered. No return at present.
594	Mrs. M. K.	48	1	1	Hypertrophied cer. Cer. four inches long.	Vag. hys.	Recovered. Cured.
624	Mrs. J. A. Y. Dr. A. J. Stone, St. Paul. St. Joseph's. 5-8-'96.	50	5	0	Car. of fundus uteri.	Vag. hys.	Recovered. No return at this time.

VAGINAL HYSTERECTOMIES.—CONTINUED.

NO.	NAME.	AGE.	CH.	M.	DISEASE.	OPERATION.	RESULT.
632	Mrs. A. K. D. Dr. Merrill, Stillwater, Minn. St. Luke's. 6 7-'96.	57	4	0	Car. of cervix; infection of right broad lig.	Vag. hys. Galvo-cautery knife.	Recovered. Soon returned. Died in seven months.
674	Mrs. R. A. W. Dr. Hayes. Chippewa Falls, Wis. Chippewa Hospital. 11-17-'96.	46	0	0	Car. of cervix, infiltration of right broad lig.	Vag. hys. Blunt dissection of right broad ligament.	Recovered. Right ureteral fistula. Dis. soon returned; still living.
705	Mrs. J. A. M. Heron Lake, Minn. St. Luke's. 2-7-'97.	47	10	0	Car. of fundus uteri. Flooding for several months.	Vag. hys.	Recovered. No report since leaving Hospital.

ABDOMINAL HYSTERECTOMIES.

OP. NO. LAP. NO.	NAME.	AGE.	CH.	M.	DISEASE.	OPERATION.	RESULT.
302 107	Mrs. C. L. S. Private patient. St. Joseph's. 3-26-'93.	50	6	0	Fibroid uterus large as a fœtal head. Pressure symptoms.	Baer's supravag. hy. Right ovary as large as a goose egg. Silk lig.	Recovered. Bull-dog forceps left in abdomen. Two years later successfuly removed. Cured.
310 110	Mrs. C. H. S. Dr. J. T. Rogers, St. Paul. St. Joseph's. 9-14-'93.	36	2	0.	Multinodular fibroid uterus. Hemorrhage. Intrauterine fibroid removed two years ago.	Baer's supravag. hys. Silk lig.	Recoved. Suppuration about ligatures.
313 113	Mrs. H. H. T. Dr. B. H. Ogden, St. Paul. St. Joseph's. 10-28-'93.	36	3	1	Multinod. uterus, size six months pregnancy. Pressure symptoms.	Baer's supravag. hys. Tumor in right broad lig. Silk ligatures.	Recovered. Suppuration and discharge of ligature. Cured.
315 115	Mrs. M. N. Dr. J. Markoe, St. Paul. St. Joseph's. 11-14-'93.	36	2	1	Multinodular uterus, large double hydrosalpinx.	Baer's supravag. amputation of uterus. Both appendages removed without rupture.	Recovered. Cured. 2-15-'96, ventral hernia. Operated upon.
394 144	Mrs. E. L. F. Dr. J. McLaren, St. Paul. St. Luke's. 7-10-'94.	50	4	0	Uterus size of third month of utero-preg. Several curettings. Profound anæmia.	Baer's supravag. hyst. Catgut lig. and suture material.	Recovered. Cured.
415	Mrs. C. A. H. Dr. I. Wear, Fargo, N. D. St. Luke's. 9-26-'94.	30	3	0	Uterine fibroid large as fœtal head. Pressure symptoms.	Baer's supravag. operation. Amputation; left ovarian cyst.	Recovered. Cured.
422 161	Mrs. J. R. Dr. Smalley, Hector, Minn.	45	2	0	Multinod. uterus, size 8 months pregnancy. Profuse hemorrhage.	Baer's supravag. amputation.	Recovered. Cured.
428 164	Mrs. C. C. T. Dr. C. E. Riggs, St. Paul. St. Luke's. 11-22-'94.	42	0	0	Suspected adenoma of fundus. Profuse menstruation. Appendages removed two years ago.	Baer's supravag. operation.	Recovered. Cured.
430 167	Mrs. I. T. McC. Dr. Aylen, Woods, N. D. 12-1-'94.	40	0	0	Multinod. fibroid size of 8 months pregnancy.	Baer's supravag. operation. Both appendages were diseased.	Recovered.
440 174	Mrs. A. W. C. Dr. DeWitt, St. Paul. St. Luke's. 1-3-'95.	45	3	0	Multinodular fibroid large as 9th month pregnancy; in bed several months.	Baer's supravag. hys.	Died on 7th day. Persistent vomiting of chronic gastritis. No peritonitis.
496 213	Mrs. S. G. W. Dr. Darrow, Fargo, N. D. St. Luke's. 5-25-'95.	39	0	0	One large submucous fibroid. Hemorrhage profound.	Supravag. operation. Curetting had been followed by profuse bleeding.	Recovered. Cured.

ABDOMINAL HYSTERECTOMIES—CONTINUED.

OP. NO. LAP. NO.	NAME.	AGE.	CH.	M.	DISEASE.	OPERATION.	RESULT.
515 221	Mrs. M. H. City Hospital patient. 7-21-'95.	43	0	3	Soft fibroid, flowing, left appendage removed three months ago.	Supravag. hys. Kelley's method.	Recovered.
545 239	Mrs. A. R. S. Dr. Herrick. Lisbon, N. D. St. Luke's. 11-2-'95.	40	0	0	Large fibroid uterus. Pressure symptoms.	Supravag. hyst. Kelley's method.	Recovered. Aspiration bronchitis.
550 241	Mrs. W. W. H. Dr. C. M. Ferro, Tracy, Minn. St. Luke's. 11-16-'95.	41	0	1	Large fibroid uterus. Profuse hemorrhage. Very anæmic.	Supravag. amputatation.	Recovered. Cured.
557 247	Mrs. C. C. Dr. A. McDonald, St. Paul. City Hospital. 12-7-'95.	43	0	0	Large, soft fibroid uterus. Dense adhesions.	Supravag. amputation. Profuse hemorrhage. Continuous worm-gut of fascia.	Recovered; ventral hernia from wound; suppuration.
569 258	Miss L. R. City Hospital patient. 12-28-'95.	23	1		Suspected carcinoma uteri.	Complete hyst. by combined method. Two clamps and cat-gut.	Recovered.
578 263	Miss H. Dr. A. Senkler, St. Paul. St. Luke's. 1-14-'96.	32	0	0	Multinodular fibroid.	Supravag. amputation.	Recovered. Wound infection. Cured.
583 207	Mrs. J. W. K. Dr. L. E. Clayton, Mazeppa, Minn. St. Luke's. 1-9-'96.	45	3	0	Multinodular fibroid of uterus. Double hydrosal. Profuse bleeding.	Abdominal hyst. Bladder opened. Immediate suture.	Recovered. Cured.
588 271	Mrs. S. Dr. Persons, Marshall, Minn. St. Luke's. 2-2-'96.	37	3	0	Multinodular fibroid; uterus extended above umbilicus. Pressure symptoms.	Supravag. amputation of uterus.	Recovered. Cured.
640 340	Mrs. J. W. B. Heron Lake, Minn. St. Luke's. 7-8-'96.	42	7	1	Enlarged fibroid uterus. Attacks of menstrual epilepsy.	Complete hyst. by combined method.	Recovered. Cured. One epileptic attack since operation.
642	Mrs. P. J. H. Dr. Aylen, Sheldon, N. D. St. Luke's. 7-16-'96.	36	5	0	Large subperitoneal fibroid.	Supravag. hyst. Tremendous hemorrhage.	Recovered. Cured.
650 313	Mrs. J. C. Dr. Spaulding, Luverne, Minn. St. Luke's. 8-22-96.	40	0	0	Large fibroid uterus. Dense adhesions; double hydrosalpinx.	Supravag. hyst.	Recovered.
655 316	Mrs. W. Dr. Portmann, Jackson, Minn. St. Luke's. 6-9-'96.	65	sv	0	Carcinoma of fundus uteri. Adhesions to both large and small intestines.	Supravag. hyst. Tremendous hemorrhage. Gauze packing and drainage.	Recovered.
661 320	Miss H. K. Dr. Epley, New Richmond, Wisconsin. St. Luke's. 9-26-'96.	35	0	0	Multinodular fibroid extending above umbilicus. Pressure symptoms.	Supravag. hyst.	Recovered. Cured.
665 323	Miss C. W. Dr. B. Walrath, St. Paul. St. Luke's. 10-22-'96.	33	0	0	Multinodular fibroid. Double ovarian cysts; both containing hæmatoma.	Supravag. amputation. Both ovaries removed. Tremendous hemorrhage. Left broad lig. packed.	Recovered. Cured.
667 325	Mrs. W. Dr. J. McLaren, St. Paul. St. Luke's. 10-31-'96.	40	0	0	Large, fibroid uterus, extending to umbilicus. Pressure symptoms. Cannot work.	Supravag. amputation.	Recovered.
682 334	Mrs. C. G. E. Dr. C. E. Riggs, St. Paul. St. Luke's. 12-17-'96.	45	0	1	Soft, multinodular fibroid uterus. Flooding for several years. Very anæmic.	Supravag. amputation of uterus.	Recovered. Cured.

ABDOMINAL HYSTERECTOMIES.—Continued.

OP. NO. LAP. NO.	NAME.	AGE.	CH.	M.	DISEASE.	OPERATION.	RESULT.
693 339	Miss L. N. City Hospital patient. 1-10-'97.	28	1	0	Enlarged, retroverted, adherent uterus. Diseased left appendage.	Supravag. hyst. Both Fallopian tubes removed two years ago.	Recovered.
700	Mrs. S. Dr. Frost, Wilmar, Minn. 1-24-'97.	29	1	0	Large, suppurating uterine fibroid sac, filled with pus.	Supravag. hyst. after opening sac.	Recovered. Cured.
714 352	Mrs. H. N. J, Dr. Archibald, Atwater, Minn. St. Luke's. 2-20-'97.	36	0	0	Small fibroid uterus. Double hydrosalpinx.	Removed uterus, both appendages with appendix.	Recovered. Cured.
732	Mrs. J. P. W. Dr. Critchfield, Hunter N. D. 4-5-'97.	30	2	1	Large, adherent, tender uterus. Diseased left appendage. Right appendage removed three years ago.	Supravag. hyst.	Recovered. Cured.

of choice for abscess of the uterine wall, but, in almost all intraperitoneal, tubo-ovarian abscesses, or suppurating ovarian cysts, vaginal section is far superior, a more conservative and a less dangerous operation.

In cancer, vaginal hysterectomy or Kelley's combined operation is undoubtedly the best at our command when the disease is confined to the portio vaginalis or to the cavity of the uterus. But when the disease has broken through the uterine wall and infected the broad ligaments and surrounding tissues, the woman is in my opinion doomed. Any attempt to remove the uterus under such a condition must leave some cancerous tissue or an infiltrated gland behind, or reinfect the surrounding raw surfaces. The disease is seldom even delayed, but often aggravated and the end hastened.

Cauterizing with he galvano-cautery, in these hopeless cases, seems to accomplish more than the knife, and with the cautery I have removed the entire uterus, delaying the disease and rendering the woman more comfortable than would have been the case even if successful hysterectomy with ligature and clamp had been possible.

Dr. John Byrne, of Brooklyn, who has practised this method so successfully for the last twenty-five years or more, suggests that this inhibitory quality of the galvano-cautery knife is due to the destruction of the cancer cells outside of the line of incision. Whether this is so or not, it certainly lessens the danger of reinfecting the large raw surface, which we always run in the course of any ordinary vaginal hysterectomy.

When cancer of the uterus is taken in its early stages before it has infected the parauterine tissues, the ultimate recoveries are almost as good as those following an operation for cancer in any other part of the body. The reason why ultimate results have been so bad in the past has been that the diagnosis has not been made early enough, or, when made, precious time was lost in trying the effect of useless treatment.

Great responsibility rests upon the family physician, for the life of the patient, here as nowhere else, depends upon the intelligence, honesty and courage of the physician when the poor unfortunate first comes to consult, for the time is all too short, and the physician in the future will be held responsible by the patient and her friends, if he does not immediately advise and give her the best opportunity of getting rid of this most dangerous disease.

My own experience in hysterectomy in the last three years is confined to fifty-two consecutive operations, with two deaths.

These operations, as a study of the cases will show, were performed in all sorts of places, some at St. Luke's Hospital, some at the City Hospital, some at St. Joseph's or at the Bethesda Hospital, and some were done in the country.

There are twenty consecutive vaginal hysterectomies, with one death. This woman died on the tenth day of lobar pneumonia, which immediately followed the etherization.

There are thirty-two consecutive abdominal hysterectomies with one death, a mortality of 3 per cent, or when all the hysterectomies are combined, a little less than 4 per cent.

In the course of an abdominal hysterectomy there are many complications which may be met with, some of which are: Diseased appendages which serve to render the operation more difficult and more dangerous. Extensive adhesions are sometimes found. But perhaps the most trying is the presence of a large intraligamentary fibroid. In dealing with this last condition we find Kelley's method of particular advantage. In this, and in fact in all abdominal hysterectomies, I think it much better to first cut the uterine artery before ligating it, and not to try to pass the ligature as Baer first advised. In one of my earliest operations I ligated the ureter as a result of passing a mass ligature after Baer's method in the base of the broad ligament.

HYPERCHLORHYDRIA.*

By D. Edmund Smith, M. D.

Minneapolis.

At one time the criticism was made that the French and German schools were too theoretical, too impractical, too scientific, overlooking the therapeutical importance in their search for truth.

In the medical world empiricism had held sway for centuries, until a few men imbued with the idea that medicine should be changed from an art to a science bravely undertook to solve the problem.

Knowing that the disappointments must be met and drudgery must be performed in order to establish the foundation for future generations to build upon, they plodded on, unmindful of the outside world.

At every stage of their progress they encountered the derisive question, "How will this benefit suffering humanity?" Soon their rapid strides made men wonder, and today the world stands in awe at the field thrown open for their study. Therapeutics has been revolutionized, and today we stand halting between following ancestral traditions or trampling new paths for ourselves.

Accuracy of diagnosis is our goal. In this universal improvement diseases of the stomach have had more than their share of attention. The general practitioner gives the name dyspepsia to all the functional diseases of the stomach, and treats them empirically. In fact so little attention is given to them that the entire subject was dismissed in one of the medical schools of this state in the terse lecture, "diseases of the stomach, lavage and gavage."

Owing to the persistent efforts of Ewald, Dujardin-Beaumetz, Matthieu, Simon, and many in this country, seven different classes of functional stomach diseases are recognized, each one requiring a radically different method of treatment. Of these hyperchlorhydria is more frequently encountered in general medicine. In itself hyperchlorhydria is not a disease, but a symptom of several different gastric conditions. It is so constant that it is pathognomonic.

Hyperacidity occurring during digestion is the most trifling, and is controlled by dietary changes with the administration of magnesia carbonate, nux vomica and carminatives.

The second division, an excessive secretion of HCl occurs in crises like ataxia and migraine.

Repeated attacks are often prodromal symptoms of the third division, hyperchlorhydria, called Reichman's disease, in which there is a continual secretion of HCl accompanied by stasis and dilatation. While regarded as of little importance hyperchlorhydria will claim our attention wherever is found the exacting nervous strain of modern city life.

The stomach is supplied with two kinds of secretory organs, the pyloric and fundus glands. The fundus glands have two cells, central and parietal. HCl is generated from the blood by the parietal cells, hence we must have a normal blood and normal cells in order to produce proper gastric juices. The zymogen of pepsin and rennet is the product of the central cells of the fundus gland. When this zymogen of the central cell comes in contact with the HCl of the parietal cells pepsin and rennet form.

The stomach and primarily these glands are governed by ganglionic centres which have a connection with the central nervous system.

These glands are stimulated in two ways. It has been seen through a fistula that mechanical stimulation produces a local secretion. Second, stimuli from the brain acting upon the ganglia produce general secretion. Food acts mechanically, and sudden shock, grief, joy, excitement or any depressing or elevating mental condition affects the activity of secretion. How often have we seen anorexia, nausea and even emesis follow sad or joyful news. Coitus has the same effect in some.

Patients suffering from hyperchlorhydria almost every time can trace the origin of their trouble to some shock or long continued nervous strain. At such a time anorexia and pyrosis are prominent. The blood being below par the nerves suffer in their nourishment, and the fundus glands are stimulated through the action of the nervous system upon the ganglia. HCl is secreted, which then becomes a mechanical stimulus and in turn continues the secretion of HCl.

These patients complain of heartburn and eructation on awakening in the morning, a condition due to the presence of undiluted acid in the stomach. The pain is relieved by food, but returns as soon as the food is saturated by the acid. A crust of bread eaten in the night relieves pain.

In the early stages of the disease mucus is poured out to protect the membrane from irritation. Until this is removed patients are not hungry and seldom eat until noon.

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*Read before the Section of Medicine of the Minnesota State Medical Society, June 17, 1897.

Emaciation and depression follow, and we are confronted with a neurasthenic whose nights are torments and whose days are such that, like Job, he longs for death.

An accurate diagnosis must be reached in order to ascertain which of the seven functional diseases of the stomach confront us. An Ewald test breakfast is given and contents are examined in an hour. Litmus or congo-red paper will show its acid reaction. The next test is for HCl. Of the many tests given by different authors two stand preeminently above the rest, viz.: the phloroglucin-vanillin and the one furnished recently by Simon and Von Jachs.

A solution is made of five parts of dimethyl-amido-azo-benzol to 1000 of alcohol. Two drops in a beaker of unfiltered stomach contents will give a cherry red, so delicate is its reaction to HCl, but to no other acid. Later writers contend that butyric, lactic and other acids are not produced by the stomach, but are the products of the fermentation of carbohydrates in the presence of bacteria.

The first twenty minutes after an Ewald breakfast lactic acid is present, but gradually disappears as the germs are destroyed by the influx of HCl. Hence those stomach diseases in which HCl is small or absent furnish, aside from bacteria, large quantities of lactic, butyric and other acids.

The total acidity is important, for it is necessary to know the quantity of alkalis to administer.

Four parts of caustic soda to 1000 parts of distilled water makes the deci-normal solution. A cc. of this solution will neutralize 3.69 mg. of HCl. A few drops of an alcoholic solution of phenol-phthallein are dropped into 100 cc. of filtered stomach contents. This remains unnoticed in an acid, but turns bright red in an alkaline medium. A drop at a time of the deci-normal solution is added until the acid is neutralized as is shown by the continual carmine when the stomach contents are agitated. If it takes 60 cc. to neutralize 100 cc. of stomach contents we say the total acidity is 60, which means 6 parts to 1,000. 40 to 65 total acidity is normal. Hence if it takes 60 cc. of the deci-normal solution, each cc. being the equivalent of 3.65 mg. of HCl, the sample contains 219 mg. of HCl. The total quantity of acid is easily found from this. The question of free or combined acid is unimportant for free acid is simply the excess left unabsorbed by the food.

The urine is important for two reasons: to determine the acidity and also the activity of the stomach. The continual presence of HCl causes hypertrophy of the glands and congestion of the mucous membrane. Atrophy follows in course of time and dilatation, stasis and atony are present.

Sievers and Ewald recommend giving a grain of salol. This is unaffected by an acid medium, but is rapidly decomposed by the alkaline medium of the intestines, and is excreted in a few moments as salicyluric acid. A few drops of sesquichloride of iron will detect its presence by the display of a violet color. The time consumed between ingestion and its appearance in the urine indicates the activity of the stomach in forcing the salol from the stomach into the intestine. It is useful in comparing the improvement in the patient from week to week. Two obstacles to this test arise: alkaline mucus may be in the stomach hastening decomposition, or the small intestine may contain acid, delaying the action.

The specific gravity is normal, as is the amount of indican. The urine becomes alkaline on the withdrawal of acids from the stomach in hyperchlorhydria, but no change in the urine occurs under the same conditions when the gastric juices are normal or lacking in HCl.

Treatment is directed to two lines: neutralizing the acid and removal of mechanical stimuli. In one respect it depends upon whether the condition is due to elevation or depression, indicating in one case the use of nerve sedatives, in the other stimulants. As in all disease remove the cause, but more often the patient must be removed from the cause. This is a neurosis; business worry, overwork, domestic infelicity, excessive sexual stimulation are often the fault. Coarse foods, acids, spices, alcohols, bolted food are causes. Improperly masticated or divided food is one of the worst foes, hence the necessity of good teeth, even to the extent of supplying false teeth. The nursery tale of the man who made it his habit to take thirty munches to each mouthful should have its exemplification in these patients.

As the brain centres control the ganglia of the stomach, bright, cheery, exhilarating conversation should exist. Let the members of the family save and collect, if necessary, humorous stories to lengthen and enliven the time at table. Of course talking business, and especially the custom of busy men to take customers to lunch, in order to save time, should be interdicted. Any food containing the germs of putrefaction, such as strong cheese, fruit and vegetables that have become a little soft or overripe presenting evidences of incipient putrefaction, continue to irritate and ferment in the stomach.

Vegetarian diet, because of the excess of carbohydrates is injurious, since the acid swells the coverings of the cells, which, becoming soggy.

ferment and act as a mechanical irritant. These starches and other carbohydrates are digested in the alkaline medium of the small intestine. If the HCl has overflowed into the intestine, it could not digest and intestinal indigestion occurs, followed by the strange anomaly of emaciation accompanied by a ravenous appetite.

An exclusively albuminoid diet is the only one to be followed. Any shreds or undigested parts of the meat must be avoided, because of their mechanical irritation. In order that the meat may present as much surface to the acid as possible it should be pulverized. This was a difficult task, but now we are relieved from it by the powdered meats of enterprising pharmacists. Whites of egg and milk are admissible. Lavage should be given once a day. In those cases where dilatation and stasis are prominent the tonicity of the stomach walls is greatly aided by the needle douche. The end of the stomach tube is finely perforated, and the water passing through under pressure, acts as so many needle points massaging the walls of the stomach.

A wineglassful of the iced juice of a round steak slightly broiled given every four hours with a little seasoning, acts like an alcoholic stimulant. The meat should not be heated to the point of coagulating the haemoglobin. Bicycle riding, trips to noted watering places, by taking the patient from his worries, are to be encouraged.

Medication is slight, but important. It is directed to neutralizing the acid constantly poured out in hyperchlorhydria and to the repair of the nervous elements.

In our diagramatic case there were 6 parts to the 1,000 of acid, hence there would be nearly 50 grammes of acid. Sodium bicarbonate is the first remedy at hand. It takes 1.48 grammes to saturate a gramme of acid, hence nearly 75 g. would be necessary, which would be injurious.

Calcined magnesia has four times the neutralizing power and would require only 18 grammes. Ammoniated magnesia has twice the power. Knowing these valences, a combination of the three alkalis is very beneficial, if given in proper proportions. Potassium salts to reach the desired effect would require about 600 grammes, which is out of the question. Lime water is excellent, but would require two quarts. The alkaline compound is given in divided doses, beginning when the saturation of the food is reached, and free HCl would begin to cause pain. This same alkali given on an empty stomach, by increasing the flow of HCl would aggravate the condition of hyperchlorhydria.

The excessive vomiting after chloroform anaesthesia is due to its effects upon the secretory ganglia of the stomach, producing hyperacidity.

In closing we would ask that if the vomiting of pregnancy is a neurosis, might not it be reached by the same treatment as hyperchlorhydria, which is a neurosis?

20 West Grant street.

TREATMENT OF SUBMUCOUS INFILTRATION OF THE SIDES OF THE NASAL SEPTUM WITH THE SHARP CURETTE.*

By H. Longstreet Taylor, A. M., M. D.,

Laryngologist and Rhinologist to the City and County and Bethesda Hospitals, St. Paul.

A frequent cause of nasal obstruction is an infiltration of one or both sides of the nasal septum near its posterior edge, beginning near its posterior inferior angle and extending for some distance upwards and forwards. It usually extends above the posterior end of the inferior turbinate, and the irritation of contact is quite sufficient to keep that sensitive organ engorged and swollen, thus producing a total occlusion of the nose the greater part of the time. Seen in the rhinscopic mirror, instead of presenting a narrow, straight line, like the back of a case knife blade, the septum looks like a spindle, tapering towards its upper and lower ends, with a symmetrical bulging throughout its central portion. The central and most prominent portion of this swelling will be seen to be opposite the posterior part of the inferior turbinal body, with which it is usually in contact.

To cauterize the inferior turbinates under these conditions is very bad treatment, because the root of the evil is left behind. If the septal infiltration is removed the turbinates will return to a normal condition in the majority of cases, because nasal breathing will be thereby reestablished, and a resumption of function is always the very best therapy.

Any organ deteriorates that is not used. A return to normal functional activity is the stimulant required to restore perfect health. Hence unless the nasal obstruction has been of very long standing, and a true hypertrophic condition has been produced in the turbinal bodies, they can very properly be left alone, at least long enough to observe if they will not return to the normal condition without surgical assistance.

This infiltration of the sides of the vomer is often found together with lymphoid degeneration of the pharyngeal vault, which observation may contain a hint as to the pathology.

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*Read before the Section of Surgery of the Minnesota State Medical Society, June 18, 1897.

The best treatment is to remove every trace of this infiltration and leave the sides of the vomer smooth. No instrument does this as thoroughly, or as quickly, or with as much satisfaction to both surgeon and patient, as a small, Simpson's uterine curette which has been sharpened. This is introduced through the external nares, and the scraping begun under the control of the rhinoscopic mirror. When the position of the swelling has been thus accurately determined, the little operation can be finished by the sense of touch and resistance, and if not entirely satisfactory can be completed at a second sitting. But as a rule one sitting suffices. Cocaine is the only anaesthetic required.

The advantages which the writer claims for this operation are its thoroughness, the rapidity with which it can be done, and the absence of adhesions during the healing process, because the turbinate is not injured in the least by the manipulation. The galvano-cautery operation is not so thorough, except after several sittings, and is very apt to be followed by adhesions, which can at times be very troublesome, especially if the patient fails to reappear for some days or weeks. The hemorrhage is unimportant. After treatment, simple cleansing of nasal passages with any alkaline and antiseptic wash.

Lowry Arcade.

REPORT OF A CASE OF CLUB-FEET.*

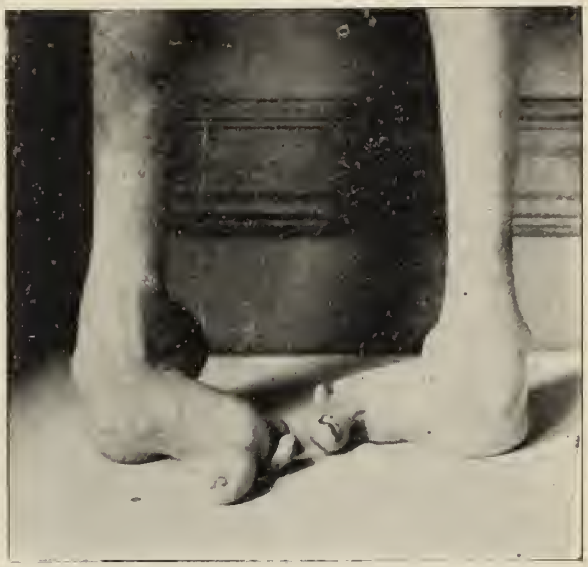
By G. G. Eitel, M. D.,

Minneapolis.

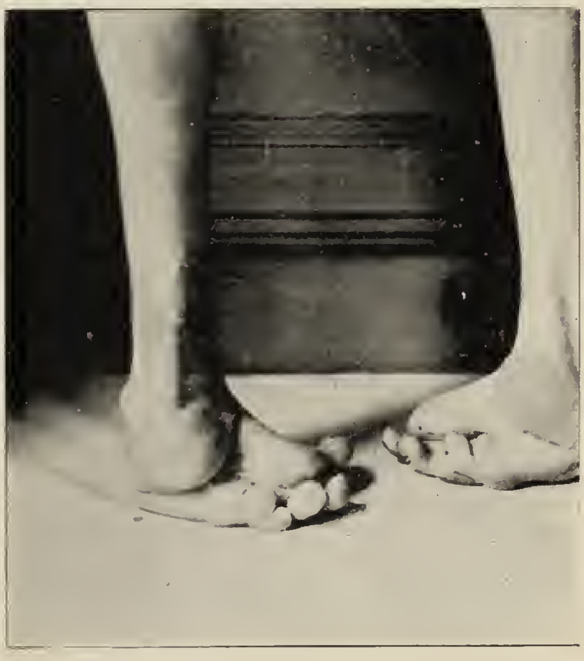
I take the liberty of reporting one of the most pronounced cases of congenital talipes equinovarus of both feet that ever came to my notice.

A glance at the casts and photographs of the patient's feet, which were taken on the day of the operation, will convey a much better idea of the extent of the deformities that existed than would be possible for me to give by a verbal description.

The patient is a young man twenty years of age, with good family history, and he himself having always enjoyed good health. With the assistance of Dr. F. R. Wright I operated upon him on the first day of May, 1896. A large wedge or V-shaped piece of bone was removed from the dorsum of each foot, after which all the resisting tendons and fasciae were subcutaneously severed. In order to straighten the toes it became necessary to tenotomize all their flexor tendons and produce fractures of all of the first phalanges near their bases. The extensor ten-



ANTERIOR VIEW.



POSTERIOR VIEW.

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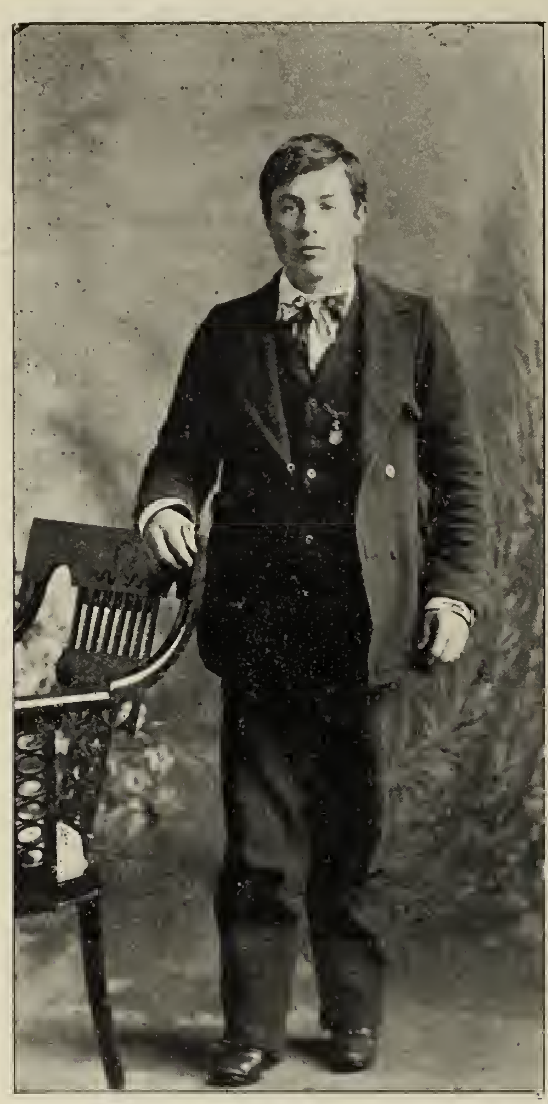
*Read before the Section of Medicine of the Minnesota State Medical Society, June 18, 1897.

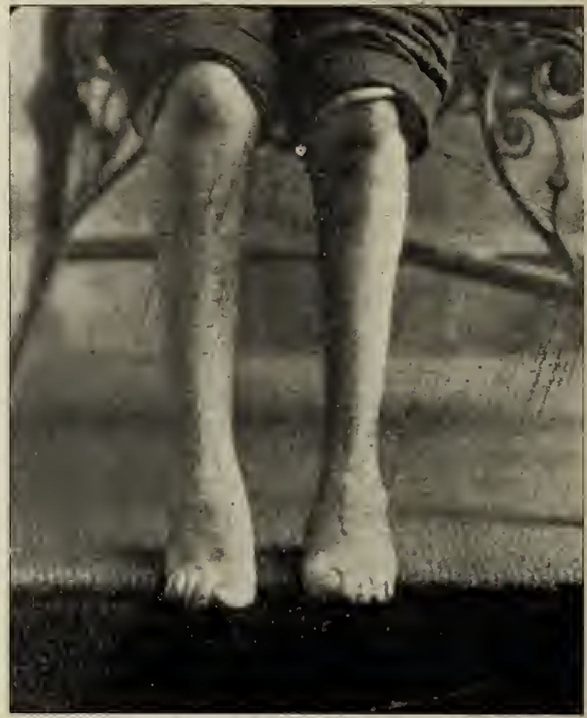


A YEAR AFTER OPERATION.

dons of the great toes also had to be severed in order to alow them to come down on a plane with the toes. Tenotomies of the tendons of Achilles were last made. After closing the extensive wounds on the dorsum of each foot with cat gut sutures, the feet were placed in plaster of Paris splints, in the most favorable position, and left undisturbed for three weeks, when the splints were removed and fresh ones applied, which were left on about a month, at which time I found the union of the bones quite firm.

The patient has shoes to fit his feet and is able to walk very well, and feels quite proud of his much improved feet.

The photographs taken almost a year after the operation will show the result of the treatment.



A YEAR AFTER OPERATION.

THE LIMIT OF OPERATIVE AID IN THE TREATMENT OF MALIGNANT DISEASE OF THE UTERUS.*

By J. L. Rothrock, M. D.,

St. Paul.

The question as to what is the proper limit of operative interference in the treatment of malignant disease of the uterus is one which confronts every practitioner more or less frequently.

As a rule, malignant disease of the uterus comes under the observation of the physician only after it is well established.

According to Fehling and Hofmeier (1) only from 20 to 25 per cent of the number of cases which presented themselves at their respective clinics for treatment were operable. Within recent years the percentage of operable cases has risen until in Olshausen's (2) clinic in 1893 it reached 40 per cent.

This is no doubt partly due to the earlier recognition of the disease and to the application of more radical operative procedures. The reasons for the seemingly small percentage of cases still amenable to operation are many.

Read before the Section of Gynaecology of the Minnesota State Medical Society, June 16, 1897.

It often happens that a woman who has always enjoyed good health shrinks from an examination by a physician, vainly trying first the common household remedies, and only when driven to it by alarming symptoms, such as pain or hemorrhage, will she consult medical aid. Then, too, the physician who is constantly on the alert will in the end have much less to reproach himself for at not having recognized the early symptoms which pointed to the beginning of malignant disease, for no physician has done his whole duty to his patient who has allowed these symptoms to pass unheeded. If I am pardoned the digression, I will say here that every inexplicable hemorrhage or tendency to menorrhagia or foul discharge occurring in a woman of the child-bearing age, and more especially about the menopause, should cause us to consider the possibility of malignant disease, and after a careful examination, if doubt remains, a small piece of the diseased cervix, or the uterine mucosa, as the case may be, should at once be secured and submitted to a competent microscopist for examination, for in this way only can a positive diagnosis of malignant disease be made in the earlier stages, a point of supreme importance to our patients.

On the other hand, malignant disease may be so free from symptoms as to attract no attention, and it not infrequently happens that by the time the patient seeks medical advice the elective period for operation has already passed, because of the destruction wrought on the surrounding tissues by extension of the process or the involvement of neighboring lymph glands.

As is well known, cancer is in the beginning always a local disease. From this primary seat it may extend to distant parts of the body in one of three ways:

1st. By extension to adjacent tissues known as "extension by direct continuity."

2d. Through the blood vessels involving distant organs. "Metastasis."

3d. Through the lymphatics, involving neighboring or distant lymph glands. "Regional infection."

Of these three modes of extension, metastasis is the least common, and occurs late in the disease. The reasons for this are obvious. Metastasis occurs by the loosening of a small embolus which gains access to a vein, as by ulceration, or more probably after the penetration of the wall of the vein a small fragment is washed off by the blood current and carried to a distant organ, where it lodges and grows. It is evident that the conditions requisite for such pathological changes are present to a greater extent late in the disease, when the parametrium is invaded and the blood vessels are surrounded by densely packed invading cancer cells. As regards the frequency of metastatic extension Wagner (3), Blau (4) and Dybowski (5) found among 255 cases dying of cancer of the womb without operation 63 cases with metastases, and concluded that of all cancer of the mucous membranes that of the uterus less frequently gives rise to metastases, and invariably late in the disease.

In substantiation of this latter conclusion, of 352 cases operated upon in the Universitäts Frauenklinik in Berlin (6) in only nine was there a return by metastasis, showing that at a stage when operation is still possible metastases are not common; so that as a factor governing us in our decision as to whether a given case is operable or not metastasis will play a rather unimportant rôle.

Before proceeding to consider the other two modes of extension it will be instructive here to consider briefly the anatomy of the uterus and its surroundings.

The uterus is held in place chiefly by the enclosing folds of the peritoneum called the broad ligament. This structure extends vertically across the pelvis, being attached to the pelvic walls on either side. It encloses within its folds the uterus and appendages, and by union at its inferior border with the recto-vesical fascia may be said to include the bladder and ureters anteriorly, and the rectum posteriorly.

It encloses within its folds besides other structures of vast importance, those which concern us most being blood vessels, nerves, and more especially lymphatics.

All these structures lie in areolar tissue which fills the space between the folds of the broad ligament. Between the rectum and uterus the bladder and uterus extending from the vesical and retro-uterine folds of the peritoneum to the vaginal vault. This constitutes the parametrium. According to Poirier, the lymphatics of the female genitals may be divided into three groups:

1. Those of the lower two-thirds of the vagina lead to the inguinal glands. Occasionally there is also a communicating branch coming from the uterine horn through the inguinal canal in company with the round ligament.

The lymph vessels of the upper third of the vagina and cervix follow the course of the uterine artery to the iliac glands, usually two or three in number, which are situated near the base of the broad ligament anterior to and about the junction of the iliac arteries.

The lymph vessels of the body and fundus of the uterus run along the superior border of the broad ligament in company with the ovarian artery, and turning at the base of the broad ligament pursue an upward course, terminating in the lumbar group of glands.

Extension by the lymphatics takes place

through the lymph spaces and vessels to neighboring or distant glands without the lymphatics themselves becoming involved until late in the process, and then usually by extension by direct continuity.

As regards the frequency of extension by the lymphatics reports differ. Blau in 93 autopsies found 74 cases, while Dybowski in 110 autopsies found 43. Winter, after a careful examination of 50 cases under anaesthesia, was able to note lymph gland involvement in 12 cases, and where the parametrium still remained free in only three. He, therefore, concluded that so long as the disease remains confined to the uterus, glandular involvement is the exception, and even when the parametrium is diseased there is a likelihood of glandular involvement in only a third of the cases.

According to most authorities lymphatic extension occurs late, and Gusserow states that not a small number of cases run their entire course without the neighboring lymph glands becoming involved.

Wagner also bears witness to the comparative infrequency of glandular involvement, and states that it is rare compared with extension by direct continuity. According to that same authority, not all enlarged lymph glands must be regarded as cancerous. In the light of modern pathology, we can readily see how infection from pathogenic bacteria may, and often does, cause enlargement of lymphatic glands, especially as such infection is so constant an accompaniment of the advanced stage of cancer when necrosis and ulceration have taken place.

Let us now see what is the fate of the involved lymph glands. Is there an extension to the surrounding tissue by direct continuity from them?

According to Wagner, the glands may reach the size of a hen's egg, but usually remain encapsulated, only occasionally becoming fused into a mass with the infiltrated surrounding tissue, and usually when this happens it is associated with an extension by direct continuity from the original focus. Extension by direct continuity is by far the most frequent mode of invasion.

Thanks to the labors of Ruge and Veit (8), Williams (9) and others, we have a fairly good knowledge of the direction and course of extension. Cancer of the uterus observes certain anatomical lines involving most frequently the portio vaginalis next the cervix, and least frequently the body of the uterus. From the portio vaginalis it extends along the vaginal vault, involving the superficial tissues until the parametrium is reached, through which it may extend posteriorly along the sacro-uterine fold, or laterally through the broad ligament. The vagina may also be invaded, and the process extend over the greater portion of the upper third, either ulcerating as it advances or infiltrating the submucosa.

Carcinoma of the cervix usually quickly infiltrates the uterine walls, and, extending to the parametrium, may advance to the bladder anteriorly, or to the rectum posteriorly, or it may extend laterally and infiltrate the broad ligaments.

In a few instances it extends to the uterine cavity, producing ulceration as it goes. From its anatomical relations, it will be seen that the cervix constitutes the most unfavorable point of involvement, from an operative standpoint.

Cancer of the body may extend by penetration of its walls and infiltration of the broad ligaments, or downward toward the cervix, or outward into the Fallopian tubes. As a rule, cancer of the body tends to remain confined to the uterine cavity for a long time, and so is favorable for operation. With regard to operative procedures, they are of two classes—curative and palliative.

The first has for its aim the entire removal of all cancerous tissue; the latter are such operations as are directed against the disease for the relief of urgent symptoms, or with the hope only of staying the progress of the disease for a time.

The chief condition requisite then for the former is a limitation of the disease to a circumscribed area which will lie within the field of operation. As long as the disease is confined to the uterus, the question is easily decided in favor of total extirpation of the organ by the vaginal route, the mortality of such operation, with the use of improved technique, having, in the hands of good operators, fallen to a surprisingly low figure. When the disease has extended beyond the limits of the uterus, involving the surrounding structures, the question is not so simple of solution. Extension to the vagina from the portio vaginalis does not contraindicate operation, for, as we have seen, in this location it is usually superficial. Schroeder, and since him a number of other operators, have removed the entire vagina for malignant disease with entire success, both as regards immediate and subsequent results. When the parametrium has become involved it is a more serious matter, for then it is difficult to tell to what extent the disease has invaded the broad ligaments.

Many authorities oppose operation after the parametrium has become invaded, on the ground that a return of the disease is almost inevitable. If, however, the disease is still confined to the structures in close proximity to the uterus, and has not extended to the pelvic wall, there still remains the possibility, by careful dissection, of the removal of all the diseased tissue.

It is evident that in these cases a more radical mode of procedure is necessary, and with this end in view the last few years several operations have been proposed, most important among which are the sacral and abdominal operations, with various modifications.

The sacral method has had its chief adherents in Europe, and has never gained favor in this country.

It is an adaptation by Herzfeld (10) of Kraske's radical operation for malignant disease of the rectum. The following advantages have been claimed for it:

1st. Clear view of operation field.

2d. Less danger of septic or cancerous infection of the peritoneum. On the other hand, its great disadvantage of very long period of convalesence during which the patient must lie on the side, and the high rate of mortality, figured by Westermark (11) from a collection of 104 cases at 25 per cent, argue much against the operation.

The tendency with American gynaecologists has been to revert to abdominal hysterectomy as practiced by Freund years ago, with various modifications to suit individual cases.

Operations of this nature have been proposed by Ries (12), Clark (13), and Polk (14), and each has its merits, but it is evident that no one operation will be applicable to all cases. In some instances it will be necessary to resort to a combined method, especially where the vagina is involved.

The chief advantage of the abdominal operation lies in the fact that it allows thorough inspection of and complete removal of the broad ligaments, if necessary, as well as of any enlarged glands which may be found.

It is well known that the remains of an old inflammatory parametritis may simulate cancerous involvement, and in fact it is no uncommon thing to find adherent appendages or the remains of old pelvic inflammation about a uterus which has subsequently succumbed to cancer. The great advantage of inspection from above in such cases is at once apparent. It is perhaps too soon to speak of the scope of usefulness of this operation, but in skilled hands it promises well. The high mortality which formerly obtained in the combined operation for the removal of the uterus has been much reduced since abdominal hysterectomy for fibroid tumors has become more common, and it would seem that in well selected cases, aside from prolonging the operation to some extent it has comparatively little influence upon the mortality.

One thing is absolutely necessary before considering such an operation, and that is a most careful examination of the patient, under an anaesthetic, if need be, having first carefully informed ourselves as to the condition of the heart, lungs and kidneys. It may be generally said that if the uterus is firmly fixed in the pelvis and one can be reasonably sure that the exudate is cancerous, such a case is beyond the hope of operative interference. On the other hand, one frequently meets cases in which an extension of the disease from the uterus is scarcely apparent, and yet so profound is the debility from cachexia that a grave operation is not to be thought of. In such cases there is usually present extensive necrosis and ulceration in the uterus.

I recall a case of this kind in which at the autopsy the debility was explained by hydro-ureter and hydro-nephrosis from infiltration of the parametrium pressing on the ureters. Yet before death the uterus was quite freely movable and the broad ligaments seemed quite free from involvement.

This is a case of cancer beginning in the cervix, and it is in these cases that operation has given the poorest results, and for obvious reasons. In cancer of the body of the uterus, the ovaries and Fallopian tubes should always be removed, owing to the possibility of their being involved.

The question here arises, how far are we justified in performing a grave operation when we know in advance that total removal will be impossible? Most authorities condemn the performance of such operations, and I believe on general principles, rightly. Palliative operations should be reserved for the relief of urgent symptoms. Yet there may be circumstances which make it desirable to prolong life to the utmost limit at any risk. Under such circumstances only, if at all, should a critical palliative operation be undertaken.

One thing especially is to be borne in mind in the performance of all radical operations, and that is the possibility of reinfection at the time of operation by reinoculation. (Implantation metastases.)

This question has been much discussed in the last few years, and experimental evidence, as well as practical experience, seem to demonstrate that this is possible beyond doubt.

On this ground chiefly has the opposition to operation after the parametrium is involved been based, and it no doubt has a bearing upon the larger proportion of recurrences after operation on cases involving the cervix, because the close proximity of the lines of operation to the diseased tissue renders reinoculation likely, especially when the vaginal method is employed. For that reason the vaginal method is to be advised only when the disease is still confined to the uterus. When it has invaded the parametrium the combined method will be more applicable.

The conclusions to be drawn from the above may be summed up as follows:

1st. Whenever the uterus is involved, no matter how slightly, with cancer, nothing short of total extirpation of the uterus is justifiable.

2nd. So long as the disease is confined to the uterus extirpation by the vaginal method is the proper mode of treatment.

3rd. Extension beyond the confines of the uterus does not necessarily contraindicate operation for total removal.

4th. Whenever the disease has extended beyond the uterus, the abdominal or combined abdominal-vaginal operation is preferable.

5th. The contraindication for the operations are extension of the disease to the pelvis through the broad ligaments literally, involvement of the bladder or ureters anteriorly, or the rectum posteriorly.

6th. The possibility of reinoculation at the time of operation should always be borne in mind.

7th. Grave palliative operations are justifiable only very exceptionally, and for the immediate relief of very urgent symptoms, if at all.

1. Schroeder-Hofmeier. Page 353.
2. Winter. "Uber die Recidive des Uteruskrebses."
3. Wagner. "Der Gebärmutterkrebs." Leipzig, 1858.
4. Blau. "Einiges Pathol. Anatom. uber den Gebärmutterkrebs." Diss. inaug. Berlin, 1870.
5. Dybowski. "Zur Statistik des Gebärmutterkrebs und seine Metastasen." Diss. inaug. Berlin, 1880.
6. Gusserow. "Uber Carcimoma Uteri." Volkmann's Vorträge. A. F. No. 18.
7. Poirier. "Lymphatiques des organes genitaux de la femme." Le Progres Medical, 1889, No. 47.
8. Ruge & Veit. "Des Krebs der Gebärmutter." Zeitschrift fur Geburtsh. und Gynak. Bd. 6 und 7.
9. Williams. "Cancer of the Uterus." 1888.
10. Herzfeld. Centralblatt fur Gynak. 1893, No. 4.
11. Westmark, "Hygiea." Bd. LVI. No. 1.
12. Ries. Chicago Medical Recorder. Nov., 1885.
13. Clark. Johns Hopkins Bulletin. Vol. VII. Nos. 59-60.
14. Polk. Dennis System of Surgery, Vol. IV.

A notion is prevalent among the public that chlorate of potassium is a remedy which may be safely indulged in to an unlimited extent, but it is high time that this dangerous error should be exposed. Therapeutists are well aware that even in comparitively moderate doses chlorate of potassium is a very active drug, producing a marked effect upon the blood, which it turns brown, and leading in large doses to cardiac paralysis and death.—*Medical Press and Circular.*

THE TREATMENT OF WHOOPING COUGH.*

By T. L. Hatch, M. D.,

Owatonna, Minn.

Two factors have induced the author to write this paper: First, the fact that heretofore the treatment of this disease has largely been unsatisfactory to both patient and physician, and to that extent has been unsuccessful; second, the desire to give a society presumably already overcrowded with papers a paper which shall be brief, but one from which it is hoped some practical good may be derived.

While the writer does not claim that this treatment is a specific for this disease, it has certainly been more successful in his hands, as well as in the hands of others who have tried it, than anything else that has presented itself to him after having closely scrutinized the literature of the subject for the last twenty-seven years, and pretty thoroughly tested most of the methods of treatment that have been promulgated during that period.

The writer purposes to confine this article strictly to the subject in the text, not discussing the pathology of the disease further than to say that he believes it to be generally conceded that the disease has a zymotic origin.

The treatment advocated here consists simply in the administration of germicides, both per orem and by inhalation.

The following prescription is given internally, of course varying the dose of the peroxide according to the age and susceptibility of the patient:

Hydrogen peroxide, dr. VI.
Distilled water, oz. IV.

Sig: A teaspoonful every hour till better; then every two hours, both night and day, while awake. Of course, the patient's sleep is never disturbed to give the medicine.

As an inhalation I have been in the habit of using a preparation of coal tar, the exact formula of which I do not know, but which goes under the name of Vapo-cresolene.

It is evaporated over a small kerosene lamp and the air kept pretty thoroughly saturated with its vapor.

In the summer I have only been in the habit of giving it at night except in the care of babies.

At night the sleeping room is kept closed as much as is compatible with a good ventilation.

Of course the general condition of the patient is looked after and he is kept in as nearly a normal condition as possible.

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*Read before the Section of Obstetrics and Diseases of Children of the Minnesota State Medical Society, June 16, 1897.

I very briefly cite two cases to illustrate the treatment and its results.

M. P., a very pretty child, born at the seventh month. At the time of its birth its mother had been a subject of the disease three weeks. By the time it was a week old it had developed the disease fully. I assumed the treatment of this case with the expectation of none other than a fatal termination, and give it a place in this paper for the reason that it certainly gave a good test of the treatment.

The evaporation of the coal tar preparation was kept up night and day in this case. I added two fluid drachms of the hydrogen peroxide to four ounces of water, giving of this mixture a teaspoonful every two hours. The mother was also given a stronger solution of the peroxide.

The fight in this case was a desperate one, and there were several times during that period in which we thought the patient dying, but at the end of that time the paroxysms were very largely under control, and though they continued for some time longer, they were comparatively mild and the child made a complete recovery.

It is now nearly two years old and very rugged.

I have thus far failed to mention one circumstance in connection with the treatment of this case which I think goes very far towards illustrating the efficacy of the treatment. The patient was seven miles from town, and though I cautioned the parents to be very careful to keep a supply of the medicine on hand, there were two or three times when their supply became exhausted, and the patient would be without treatment for a day or two. The child was invariably worse after having gone without the treatment for twenty-four hours.

While absent attending a course of lectures in May. 1896, my own two children, aged respectively eight and one-half years, and nine months, were taken with the disease.

Upon returning home in June I found them each having from twelve to twenty severe paroxysms every night besides the usual daily paroxysms.

The treatment above outlined was immediately adopted, and within three days the paroxysms were reduced at least 75 per cent. in severity and nearly that in frequency.

In all cases where the patient is not subsisting exclusively on breast milk I make it a practice to have all food and drink sterilized as far as possible. In a very few cases I have had added to the above treatment minute doses of calcium sulphide four or five times a day.

Just to how limited a period of time the disease may be limited by this treatment I am not prepared to say, but I do know that the disease is greatly modified by it in all directions.

A commendable feature of the treatment is that it can be applied without inconvenience to the most susceptible of patients.

LEUCORRHEA.*

By J. B. McGaughey, M. D.

Winona, Minn.

The gynaecologist of the present day seems to be engaged to a great extent in dealing with the more grave affections pertaining to this department, and, to some extent at least, to ignore minor departures from health which, though neither threatening life nor producing total disability, cause great discomfort, marked depression of spirits and in the aggregate much suffering, followed by impaired strength, disturbance of the nervous system and a state bordering on chronic invalidism.

The character and brilliant results of the work in the line first mentioned, and the influence in avoiding death and restoring those otherwise hopelessly incapacitated for the duties of life to robust health and usefulness cannot be overestimated. The advancement and degree of perfection attained in this field are testimonials to untiring industry and intelligent skill manifested by those who have devoted themselves to this work.

No apology is made for the subject of this paper, merely a symptom of many diseases. The prevalence and annoyance of this symptom is so great, that, although it usually depends upon conditions which may be said to belong to minor gynaecology, it is none the less worthy of our serious consideration as well as of our earnest efforts to afford relief. Ignoring all other effects arising from the cause or causes which produce the discharge, the mere presence of the latter, often producing irritation of the parts and always attended with an unpleasant sense of wetness and uncleanliness, cannot fail to induce symptoms which have a tendency to impair both the mental and physical health. The attention of the individual is directed naturally to the parts from which the flow emanates, in a manner that may result in serious injury and aggravation of the condition.

It is not intended to enter into an extended discussion of the varieties of leucorrhoea. The presence of the discharge, whether it is viscid mucus, muco-purulent or purulent, whether it originates in the vulva, vagina, uterus, tubes, or in all combined, is in itself always a source of annoyance, which may vary from the slight discomfort occasioned by a sense of moisture to that of positive suffering induced by acrid discharges and resulting excoriations. No age seems to be exempt from the conditions capable of bringing about this symptom, as leucorrhoea is observed in infants at the breast as well as in persons well advanced in years. The prevalence of such discharges cannot, for obvious reasons, be accurately determined. Medical aid is sought for the more severe cases. The number who seek for relief, and the still much larger number who admit the existence of this symptom, when questioned in regard to it, establish the fact of its widespread prevalence.

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*Read before the Section of Gynaecology of the Minnesota State Medical Society, June 16, 1897.

The conditions which are attended with this symptom in some form, exclusive of specific diseases, arise from numerous causes. Irritation from the presence of foreign substances, exposure, colds, undue excitement, overstudy, anxiety, improper clothing or food, anaemia, local congestions, uterine displacements, may induce sufficient hyperaemia or inflammatory action to cause hypersecretion of mucus, or the other more irritating discharges, which, when once established, owing largely to the difficulty of securing absolute cleanliness arising from the anatomy of the parts, seems frequently to persist, without any tendency to improve, when left to the unaided efforts of nature. These causes operate and produce alike in the married and the unmarried, in the child-bearing and in the sterile. The child-bearing woman, in addition, is liable to suffer from the accidents and diseases incident to parturition, which are followed by conditions attended with more or less profuse leucorrhoea. To this may be added that large and probably increasing class of cases in which the discharge depends upon the infection of the gonococcus. That such infection may, and probably does, occur in a manner that may be said to be accidental, or at least without compromising the chastity of the individual, is nearly universally admitted, and seems to be well established. Though unnecessary vaginal examinations, particularly in the unmarried, are to be condemned, the charge that this and other infections frequently have their origin in the unclean finger of the gynaecologist rests upon a very slight foundation of fact.

Leucorrhoea thus being a symptom, and a very annoying one, dependant upon a variety or even a multiplicity of conditions, it, of course, follows that the adoption of the most important measure, namely, the removal of the cause, can only be accomplished after a careful study of each individual case, by the aid of which the morbid change or changes upon which the discharge depends can usually be determined with reasonable accuracy. This having been done, prompt relief can, in many instances, be afforded. Unfortunately, however, numerous cases are met with which severely tax the patience and perseverence of the sufferer and her attendant. Too frequently in such cases the patient becomes discouraged and abandons all efforts to obtain relief, in which course she often has the expressed or implied approval of her attendant, who is only happy to dismiss a case in which the successful treatment involved such an expenditure of time and thoughtful work. The sharp edge of the sense of failure being somewhat blunted by the thought that the affection, though entailing suffering and discomfort, rarely causes great disability or threatens life. Few practitioners of five or more years' standing can plead not guilty to the charge of neglecting patients in this manner, to the injury of both the sufferer and her attendant.

It is the duty of the medical profession to assist in the education of the laity in all matters pertaining to the preservation of health. In affections of this class there seems to be reason to believe that this duty has been neglected or illy performed. A profuse vaginal discharge is regarded by many mothers, of at least average general intelligence, as possessing little significance and unworthy of serious attention. They should be impressed with the fact that excessive mucous secretion and all muco-purulent and purulent discharges are symptoms of diseased action which should command attention and lead to the institution of measures for relief.

Should the discharge have its origin in the vulva or vagina, absolute cleanliness, deteregent washes and the correction of constitutional disturbances will often speedily effect a cure; but if the uterus is the source of the leucorrhoea much more radical measures may be necessary. In any event, efforts should not cease until a cure is effected.

The sense of triumph that arises from affording relief in a case of vaginitis or cervicitis may not equal that experienced after a successful ovariotomy or hysterectomy, but the result to the sufferer is often times of not less value. The anaemic, enervated girl or woman, to whom life has been almost, if not quite, a burden, is not infrequently transformed by such means into a healthy person of buoyant spirits and rendered capable of performing properly the functions and duties required of her.

Time would not permit any extended discussion of the principles of treatment. Any attempt to do so would not be profitable. If attention has been directed with sufficient force to the significance of this symptom, and the causes which produce it, and to the discomfort and suffering and impaired health occasioned, the principal object of this paper will have been attained. Mothers and those in charge of young girls should be taught their duties to their charges as well as to themselves. Such instruction can, and should, be given by the intelligent gynaecologist, whose special work, experience and observation enable him or her to speak with authority on this subject.

Northwestern Lancet.

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OLD AND NEW METHODS OF TREATING GONORRHŒA.

In a recent novel called "His Majesty's Greatest Subject," the scene of which is laid in India, the author speaks of one-fifth of the white soldiers in that country as unavailable because the repeal of a certain Act of Parliament, a statement from which one who is much less than a mind reader may conclude that venereal disease is much more disabling to the British soldier than the deadliest of frontier wars. Nor does it appear that those who follow the profession of arms under the flag of the United States are less afflicted than their British brethren with this class of diseases, as the report for 1895 showed that in the Naval Service of the United States the total disability on account of gonorrhœa amounted to 14,000 sick days, surely an astonishing amount of time to be taken by the sick leave of a disease that in the majority of cases on shore at least does not cause its victims to lose a day's work.

Parliament, or any other law making body, might indeed employ its time to less purpose than by taking measures to check the ravages of venereal disease, were it not for the fact that there is no probability that the situation can be bettered by statutory enactment. Still less hope is there of amelioration of the situation through the efforts of the White Cross League, even when backed in England by the presidency of the Archbishop of Canterbury. At least all efforts in the past that have been made along legal and moral paths have been so barren of results as to offer but little encouragement for the future. The only real hope of improvement in the condition of things lies in the advance of medical science and the slow but sure progress in the understanding of the nature and management of disease.

Twenty years ago the statement that gonorrhœa was a disease of more serious consequence than syphilis would have been generally derided. Now it is widely admitted that its importance has been vastly underestimated, and the assertion has been repeatedly made by men of wide experience that syphilis is much the easier disease to handle. A chief reason for this change of view arose from the discovery of the gonococcus, which showed that gonorrhœa persists in many cases supposed to be cured, and that it is the cause of many morbid phenomena with which its association was formerly unsuspected.

Although the discovery of the specific germ threw a vast amount of light upon the natural history of gonorrhœa, it must be admitted with regret that no corresponding advantage was gained in the way of treatment. The use of germicides promised great things for the reason that it appeared to be possible to apply them directly and thoroughly to the seat of disease, and for a time loud claims were made for the success of this form of treatment. Irrigation was borrowed from the operating room and the infected urethra washed out with dilute solutions of the bichloride of mercury, permanganate of potash, carbolic acid, creolin and other popular antiseptics. One method that has been much used is to fill the bladder with the antiseptic solution and so wash the passage from back to front imitating nature. There are many reports about the results of the irrigation method, but on the other hand a large number of practitioners have used it only to find that the percentage of cases that could not be coaxed to part with the last shreds in the urine was about the same as under the old method of treatment.

That failures and disappointments arising from the use of antiseptic irrigations should lead to a reaction in favor of the old astringent injections is not surprising, and one of the most recent writers upon the treatment of gonorrhœa in the male is enthusiastic for as old fashioned a treatment as that recommended by Jonathan Hutchinson. This writer, Dr. W. F. Arnold, a surgeon in the United States navy, has had an extensive opportunity to treat the disease, often in the peculiarly virulent form that prevails in hot climates. He claims most satisfactory results from the Hutchinson treatment not only in the rapidity and certainty of cure, but also, what is of particular consequence in the naval service, in the absence of the various complications, orchitis, adenitis and rheumatism that are the chief disabling features of the disease.

It is hardly necessary to give Dr. Arnold's figures, which add but little to the strength of his more general recommendation, but for the benefit of those who do not have it at hand here is Jonathan Hutchinson's treatment in his own words, which require only the additional statement that the author of the plan cannot be blamed for failure unless his directions are fully and faithfully carried out:

> "My treatment or gonorrhœa in all stages has for long been very monotonous. Almost without regard to stage or degree of severity, I prescribe the same remedies. I have long ago laid aside the traditions of my student days, which taught that salines only should be used in the acute stages, and that abortive plans were dangerous. I always use abortive measures, and mostly, I believe, succeed. At any rate, I never encounter ill-consequences, and complications are rare. My prescription is a partnership of three different remedies, and it is, I believe, important that they should all be used. First, an injection of solution of chloride of zinc, two grains to the ounce; next, sandalwood oil capsules, and, lastly, a purgative night-dose, with bromide of potassium. The injection is used three or four times a day; the capsules (10 or 20 minims) taken three times a day. The ingredients of the night-dose are three drachms of Epsom salts, and half a drachm of bromide of potassium. It is, I believe, the action of the last named in preventing congestion of the parts which makes the abortive measures safe. Moderate purgation and entire abstinence from stimulants are essential. If the case is very acute and attended by swelling of the corpus spongiosum, I sometimes prescribe tartar emetic or tincture of aconite, but it is very seldom, indeed, that these are necessary. If the patient be well purged, there is no risk whatever in an abortive treatment from the day he comes under treatment. The risk of orchitis, prostatitis, cystitis, etc., comes in cases which have been allowed to develop rather than in those treated abortively. I should as soon think of delaying to use local measures in gonorrhœa as I should in purulent ophthalmia."

MISCELLANY.

The American Pediatric Society is making a collective investigation of infantile scurvy as occurring in North America, and earnestly requests the coöperation of physicians, through their sending of reports of cases, whether these have already been published or not. No case will be used in such a way as to interfere with its subsequent publication by the observer. Blanks containing questions to be filled out will be furnished on application to anyone of the committee. A final printed report of the investigation will be sent to those furnishing cases. J. P. Crozer Griffith, M. D., Chairman of Committee, 123 S. 18th St., Philadelphia, Pa.

An investigation of the death rate among the workers in the mine prison at Coalburg, Alabama, showed that for two years past it had reached nine per cent. annually, and the principal cause of the death rate is tuberculosis, superinduced by insufficient sunlight and ventilation. The death rate among the able-bodied men who were constant workers in the mine—men in the prime of life—was sixty-four in the 1,000. The report condemns the practice of paying sheriffs thirty cents a day to feed each country jail prisoner and giving a ten-days' convict as high as two hundred days in the mines for costs of court when not able to pay them. The pay to feed prisoners, it claims, makes the sheriff's principal income, and these officers give prisoners in the county jails cornbread and fat meat the year round and make their profit, thus preparing the prisoners for disease upon entrance into the mines.

Experiments show that that the best of all disinfecting agents for the destruction of fæcal matters in vaults and cesspools is sulphate of copper employed in connection with one per cent.

of sulphuric acid. The quantity of sulphate of copper required is one pound for every cubic foot of fæcal matter mixed with urine. Half this quantity is sufficient to destroy the cholera bacillus. It is necessary that the disinfectant should remain in contact with the infectious material for at least twelve hours.

BOOKS AND PAMPLETS RECEIVED.

A Plea for a Uniform Diastase Test. By C. C. Fite, M. D. Reprint.

Report of the Third Annual Meeting of the American Academy of Railway Surgeons.

Is There Ever a Serious Iritis without Involvement of the Ciliary Body, or Choroid, or Both? By William Cheatham, M. D. Reprint.

Congenital Cystic Degeneration of Both Kidneys. By Dr. Louis Burckhardt, of St. Louis.

Susceptibility of Infants to Tuberculosis. By Louis Burckhardt, M. D. Reprint.

Differential Indications in Regard to Choice of Operation Methods in Obstetrics. By Louis Burckhart, M. D. Reprint.

Annual Report of the Board of Health of the City of Winona, Minn., for the Year Ending March 31, 1897.

The Hygienic, Educational and Symptomatic Treatment of Pulmonary Tuberculosis. By S. A. Knopp, M. D. Reprint.

Should We Treat Pulmonary Tuberculosis as a Contagious or as a Communicable Disease? By S. A. Knopp, M. D. Reprint.

The Roentgen Rays in Surgery. By Carl Beck M. D. Reprint.

The Action of Taka-Diastase in Various Gastric Disorders. By Julius Friedenwald, A. B., M. D. Reprint.

Tumors of the Orbit. By William Cheatham, M. D. Reprint.

Antistreptococcic and Antidiphtheritic Serums in Treatment of Cases of Mixed Infection. By F. Spencer Halsey, M. D. Reprint.

The Fifty-Seventh Annual Announcement of the Missouri Medical College. Session of 1897-98.

NOTES.

We call the attention of our readers to the advertisement of the Robinson-Pettet Co., Louisville, Ky., which will be found on another page of this issue. This house was established fifty years ago, and enjoys a widespread reputation as manufacturers of high character. We do not hesitate to endorse their preparations as being all they claim for them.

MICAJAH'S MEDICATED UTERINE WAFERS IN THE TREATMENT OF NASAL CATARRH, GONORRHŒA, ETC.

In the fourteen years that Micajah's Wafers have been before the medical profession, the value of the preparation, as a local treatment for diseases peculiar to women, has been accurately determined. In the course of time so many reports have been received from physicians who have used the wafers in other diseases of the mucous membrane, that now we feel justified in recommending them for any disease of the mucous membrane, wherever situated; for instance, nasal catarrh, gonorrhœa, gleet, rectal ulceration and fistula. We mention only those ailments in which we know the wafers to have been successfully used.

In these diseases it is necessary to dissolve the wafers in water in the following proportions: for nasal catarrh the solution should be mild and not stronger than one wafer to four ounces of water; in gonorrhœa and gleet the strength should be one wafer to one ounce of water, commencing treatment, however, with a milder solution. (Specific directions for treatment in such cases will be sent on application.) In ulceration of the rectum one wafer to one ounce of water, and in this disease one ounce should be injected at a time, once a day after stool, first cleansing the rectum by an injection of warm water.

For tonsilitis and other forms of throat trouble use the wafers in the strength of one, two or three wafers to an ounce of water. As a collyrium in ophthalmia use in the strength of ¼ to ½ wafer to an ounce of soft water.

Micajah's Wafers make an excellent application to old sores when incorporated with lard or lanolin.

In all these diseases of the mucous membrane, Micajah's Wafers should be first used in a weak solution, the strength to be gradually increased, as may be required, always regarding the feeling produced as a true exponent of the good done.

MICAJAH & CO., Warren, Pa.

Dr. A. McKitrick, Brownsburg, Ind.: I am using "Sander & Sons' pure volatile Eucalypti Extract, Eucalyptol," in a number of catarrhal, pneumonic, asthmatic and dermoid diseases, also as an antiseptic in eruptive and catarrhal fevers. I consider "Eucalyptol" par excellence beyond any doubt the best antizymotic and antiseptic now in use with the medical profession. In chronic ozœna and nasal catarrh I obtain good results from the following manner of treatment: Fluid cosmoline one-half ounce, Eucalyptol one drachm; applied several times daily to nasal and pharyngeal cavities with atomizer. In broncho-pneumonia or suffocative catarrh I use with very happy results and great relief momentarily to patients the following formulæ, viz.: R. Syr. tolu, two ounces; syr. simple, two ounces; Eucalyptol, two drachms. Or, R. Syr. pruni virgin, two ounces; syr. simple, two ounces; Eucalyptol, two drachms. M. S. A teaspoonful three or four times a day. In asthma of the bronchial type "Eucalyptol" gives a feeling of relief to the patient when taken during the paroxysm of difficult breathing, in two to five drop doses on sugar or simple elixir. . I also found "Eucalyptol" very serviceable in the treatment of erysipelas and other forms of dermatitis, as an antizymotic and as a protective to the derma when used with cosmoline or vaseline.

CHOREA MINOR.

Use the following as a sedative and antispasmodic for children of five to ten years:

℞ Lactophenini................0.15;
Quinin. hydrobrom..........0.15.
M. Ft. chart. tales No. X.
Sig. Take one powder three times daily.

For children of ten to fifteen years of age, use:

℞ Lactophenini................ 0.8;
Quinin. hydrobrom...........0.8;
Butyr. cacao....,...........10.0.
M. Ft. suppos. tales No. V.
Sig Use one suppository at bed time.

From "Practical Notes" in *Pediatrics*, p. 219, Sept. 1, 1897.

"THE ACTION OF PHYTOLINE IN OBESITY."

I. N. Love, M. D.

St. Louis.

Ex-President Mississippi Valley Medical Association; Ex-Vice-President American Medical Association.

The statement will be accepted by all that fat is not the highest grade of tissue; its object in the anatomy being really as a packing material, externally serving for the artistic purpose of rounding out the lines of the figure in a manner to favor curves and that which is graceful rather than angles and abrupt prominences.

Fat in proper quantity favors comfort and favors the really beautiful, and smooths out the tangled threads of care and the wrinkled lines left by carking worries and the duming and fretting of the every day annoyances of life. It does not exist very much as a necessity to the physique, but rather as an accessory. That there can be too much of a good thing goes without saying, and the numerous mountains of flesh moving about our streets and hiding themselves in their homes will give evidence in favor of the truth of this statement.

An excessive amount of this fat is not only unsightly, but is unhealthy; in fact, as an evidence favoring the thought that fat is a low grade tissue, we speak of other tissues degenerating into fat. Certainly the tendency towards the accumulation of an extra and unnecessary amount of fat favors a dangerous degeneration of the heart and the tissues forming other important organs.

The proper selection of diet, with exercise, can no doubt do much towards the diminishing of fat, but the profession and the laity have long looked for some remedy which could be depended upon to assist towards this consummation devoutly to be wished. In Phytoline (Walker) we have such a remedy; this remedy being prepared from the active principle of the berries of the Phytolacca Decandra, after having been touched by the early frost. The remedy has been used for rheumatism for many years and also for the diminishment of excessive glandular growths, and also as a helper for the drying up and the reducing in size of breasts of nursing women. Inflammation and abscess of the mammary glands have often been prevented by its use.

The reasons for its acting favorably in those conditions have not been given. Clinically the results have been satisfactory. In a number of cases wherein I have directed the using of Phytoline for the reduction of fat I have had favorable results, and I am persuaded that the profession is justified in the use of this medicament. I have never had any pernicious effects following the use of Phytoline, and I believe it to be a perfectly safe and a harmless though a powerful antifat. I shall continue to watch the results with interest.

A PURE WATER.

Endorsed by Physicians.

The Indian Medical Springs water is a positive preventive for typhoid fever, if used exclusively. Also a cure for rheumatism, kidney disease, eczema and all of the allied diseases of the bladder and stomach. It acts especially upon the gastric juices of the stomach, aiding the assimilation of the food, and producing new blood, which no medicine will do.

It is of a superior character, and has no equal as a mineral water, and as such we recommend it to all readers who desire the best medicinal water in the world.

The Indian Medical Spring Water is sold as low as any other water. For prices, etc., call upon, or write to

The Indian Medical Spring Water Co.,
404 Masonic Temple, Minneapolis.

ORIGINAL ARTICLES.

THE APPLICATION OF THE X-RAYS TO SURGERY.*

By Arthur Ayer Law, M. D.,

Minneapolis.

Eighteen months ago Prof. Wm. Konrad Roentgen gave to science the results of his experiments and introduced the X-rays. Since the eighth of December, 1895, his comparatively simple discovery has been elaborated upon by many scientists, both at home and abroad; the practical principles he advanced at that time have not, however, been improved upon, but the apparatus for the production of the X-rays has been immensely modified and improved, thanks to such men as Nikola Tesla, Thos. A. Edison and Dr. Wm. J. Morton.

Following the assertion of Roentgen, that the X-rays were produced by the discharge of a high tension but low volume current of electricity through a nearly perfect vacuum, Dr. Morton utilized the Holtz machine and the static induced current as being in some respects superior to the current evolved from a Ruhmkoff coil, in that it did not heat the tube and prolonged its life indefinitely.

Nikola Tesla, realizing that a current not only of very high voltage and low amperage was necessary, but that the efficacy of the rays depended as well upon the frequency of oscillations, utilized his so-called Tesla coil, in conjunction with a Ruhmkoff coil.

Up to the present time the formula of this apparatus, as devised by him, is the best as yet introduced; my early work was done by the aid of a large Holtz machine, but of late I have used Tesla's machine with gratifying results.

In the "Electrical Engineer" of October 21, 1896, Dr. Trouton presented a paper on "The Duration of X-Radiation at Each Spark." He found the duration to be something over 1-10,000 of a second, sometimes as long as 1-800 of a second. Prof. J. J. Thompson remarked that radiation so brief showed how inefficient were spark coils, or Holtz machines, as instruments for producing it, since the period of the spark was so much longer than the period of the radiation.

To produce the high frequency and high voltage with low amperage, Tesla's formula was evolved; with the apparatus I have, with the consumption of about three amperes and 110 volts I am able to obtain a voltage of about 3,000,000, with a frequency of approximately 400,000 a minute, of 6,660 a second. The effect of this discharge on the Crook's tube can be readily imagined, the only drawback being the inability of the tubes to long withstand such a powerful current, making experimenting very expensive.

When a year ago it was my pleasure to address this Society I exhibited skiagraphs, which at that time were considered to be remarkable; a comparison of the skiagraphs shown today will perhaps do more than all else to illustrate the rapid strides that have been made in the perfection of apparatus and technique.

Whereas then we were obliged to content ourselves with long exposures, varying from fifteen minutes to two hours, and obtained but indifferent results, now our exposures are cut down to ten minutes and under for any part of the body, and for the hands and feet are practically instantaneous.

This shortening of the exposure has been brought about as much by the improvement in the tubes as in apparatus; the so-called focus tubes concentrate the rays in such a manner that their penetrating power is much increased and clear cut, sharply defined images are obtained.

It is not my purpose to go into a detailed description of all the recent advancements in the perfection of apparatus, but rather as the title of this paper suggests, to call your attention to the application of the X-rays to surgery.

Thos. A. Edison, by his evolution of the fluoroscope, with its tungstate of calcium screen, has given us the most valuable adjunct to the X-rays themselves, for with this instrument we are enabled to at once examine our patients, and from as many different positions as necessary without waiting for the testimony of the skiagraph from but one.

The fluoroscope now easily takes its place with such well known instruments of diagnosis as the stethoscope, ophthalmoscope, percussion hammer, probe, etc.

While the application of the X-rays to surgery is of perhaps the most vital importance, they have other nearly as valuable and interesting uses. As an aid to the study of normal anatomy, their value cannot be overestimated, for the artificial arrangement of the bones in the skeleton can never so well give their exact relations as do X-ray skiagraphs, nor give us so perfect an idea of their relations to one another upon change of posture in the joints.

The growth of the bones in children, with the still separated epiphyses, or the absolute lack of bone, is beautifully shown and readily studied.

Perhaps the most valuable gift of the X-rays to the science of anatomy is the ability they give us to study the blood-vessels of the body in their exact relations to the bony framework and the softer tissues.

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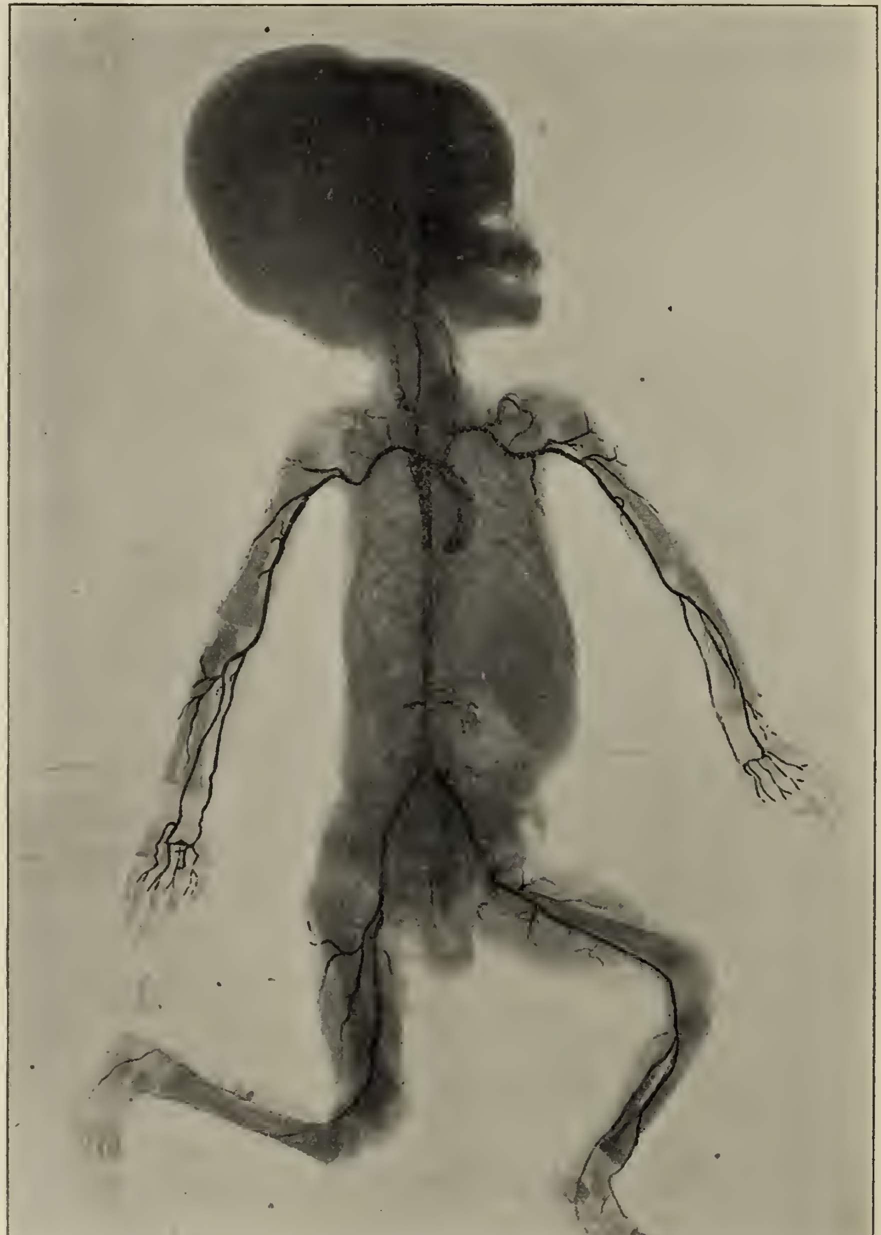
*Read before the Section of Surgery of the Minnesota State Medical Society, June 18, 1897.



Arterial System of a Two Months' Old Baby Injected with Plaster of Paris.

This is done by injecting the arteries of the cadaver with plaster of Paris or with mercury, as they are impervious to the rays, thus showing beautifully all the blood vessels, their ramifications and anomalies.

By means of the ingenious cut-off devised by Dr. Hebber Robarts, of St. Louis, and inserted into the handle of the fluoroscope, we are now able to study many of the softer tissues of the body.

The heart casting a slightly darker shadow than the surrounding tissues can be seen beating, as a wave of shadow changing shape, while the liver is distinctly seen rising and falling with respiration.

Tumors, dependent upon their density and position, can be outlined by the facility with which they either transmit or obstruct the rays.

In all my experiments with gall stones as yet, I have been unable to obtain satisfactory skiagraphs of them; they offer so little resistance to the rays that they cannot be detected within the human body.

While the results with gall stones are negative, kidney and bladder stones cast dark shadows and can be photographed, providing they are composed of uric acid or oxalate of lime, but the phosphatic stones offer no more resistance than do gall stones.

The rays seem to have a limited use in the detection of tubercular troubles within the lungs; where there are calcarious deposits in the apices they are sometimes shown, and cavities may be shown negatively by the lighter areas indicating a more ready transmission of the rays.

Some work has been done along this line, the extent of the tubercular trouble having first been determined by means of the ordinary methods of physical diagnosis, lead wire being used, strapped to the skin to map out the invaded areas; now the X-rays being called into use either confirmed or refuted the diagnosis.

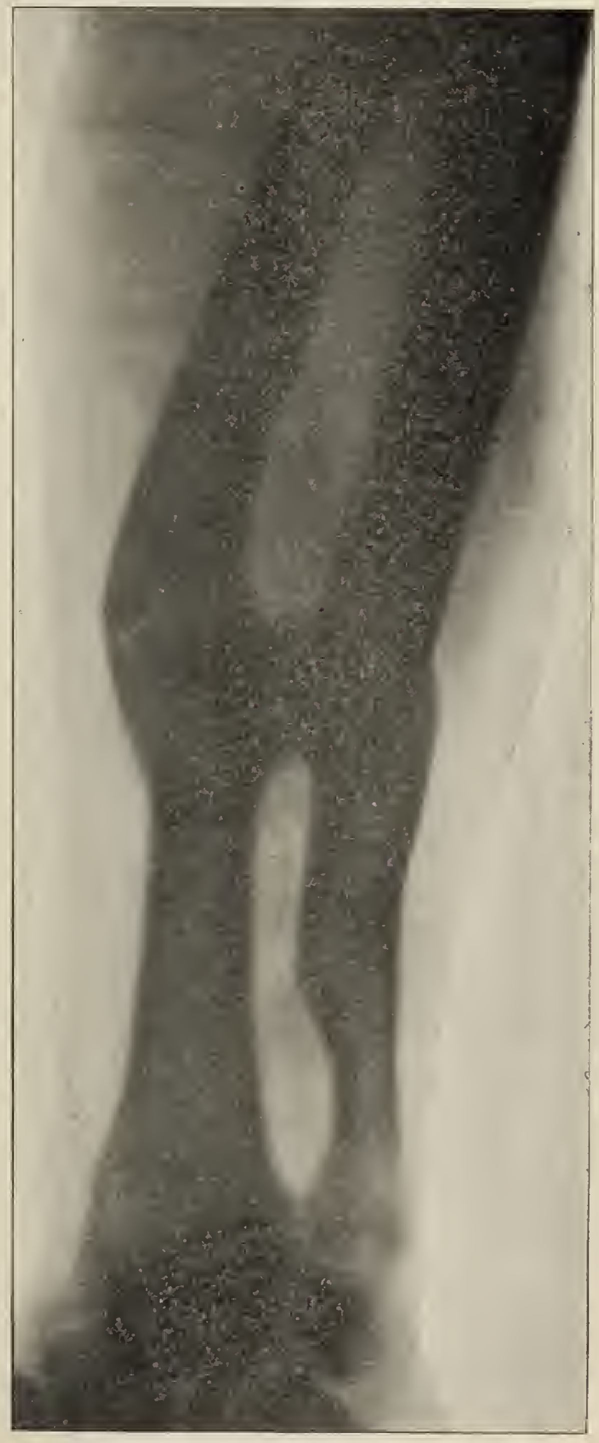
The consolidation of pneumonia is readily determined either by the fluoroscope or skiagraph.

The study of blood vessels is limited to those cases where an atheromatous condition of the vessel walls exists, or to aneurisms.

I have seen several beautiful skiagraphs showing distinctly a large aneurism of the arch of the aorta

Our dental brethren have taken up the rays with happy results, using them in detecting disease of the alveolar process, in locating teeth that have not erupted as yet, in finding fragments of broken instruments, in mapping out fillings and in studying the details of the enamel, dentine, cementum, nerves and roots of the teeth.

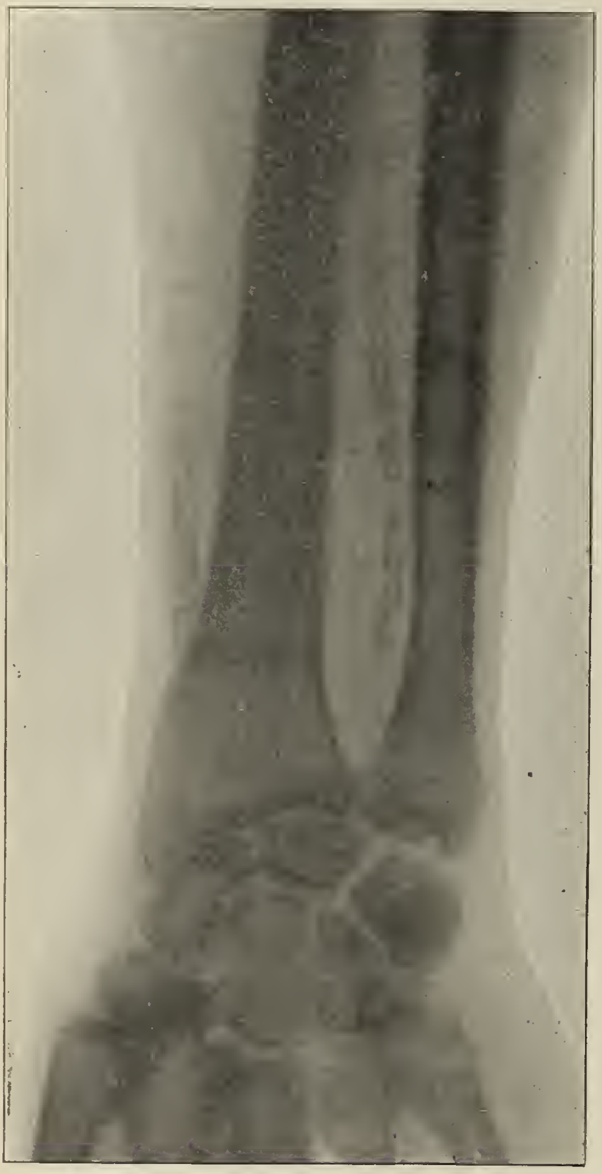
The use of the rays is not confined to the general surgeon. The specialists are calling upon us to give confirmatory evidence of their methods of diagnosis.



Deformity Resulting from Fracture of the Forearm.

The oculist has received valuable data with regard to the exact location of foreign bodies in the eye ball itself or in the orbit.

The laryngologist calls upon us for the purpose of assisting him in the detection of foreign bodies in his territory, and even the obstetrician is glad to be confirmed in his diagnosis of position, presentation or twins.



Atheromatous Arteritis in Forearm.

The paediologist has a certain means of knowing whether his little patient has swallowed a whistle, jackstone, marble or coin, while the orthopaedist has many cases that have light shed upon obscure symptoms by this wonderful method of diagnosis.

So much has been written about the detection of fractures and their non-union, of dislocations, of anchylosis, fibrous or bony, of exostoses, bony tumors, obscure joint troubles, of syphilitic and tubercular osteitis, as shown by the rarified areas incident to encroachment of the disease and showing the blurred, irregular outlines of the bone, and of the location of bullets in any part of the trunk, cranium or extremities, that I am disposed to give them but passing mention.

Ever and anon reports appear in the lay press descriptive of serious injuries following exposures to the X-rays, and even the medical journals have several times dilated on the subject.

This question is so exceedingly pertinent and has so important a bearing upon the X-ray work that it seems expedient to attempt to explain what these ill results are due to, for ill results most certainly have followed the use of the rays.

In the first place, we are uncertain as to whether the so-called "dermatitis Roentgenii" is due to the irritating effects of the X-rays themselves, or is produced by some electro-static or electro-magnetic effect; it seems as plausible to attribute them to the latter as to the former.

Personally I have never had any ill effect follow the use of the rays in over fifteen months of experimenting, but through my correspondence I am cognizant of several cases where loss of hair and severe irritation of the skin, a true dermatitis in fact, has followed their use. Nor is this all. The skin and deeper tissues have been known to slough, and to be so devitalized that the process of healing was very much prolonged.

Nikola Tesla, who has made a special study of the specific action of the rays, has arrived at several conclusions as to what the destructive action upon the tissues is due to.

First. The thermal effect. The tube when run for any length of time becomes very hot, and if near enough to the body this heat alone is sufficient to have a destructive action on the tissues.

Second. The purely electrical effect. We have absolute experimental evidence that the particles or rays convey an immense amount of electricity. The mere fact of these particles being highly electrified is sufficient to cause destruction of tissue. Certainly on contact with the skin the electrical discharge will be given off, and may give rise to strong and destructive local currents in minute paths of the tissue.

Third. The electro-chemical. The charged particles give rise to an abundant generation of ozone and other gases, and these, we know by experiment, destroy even such things as rubber, and are therefore the most likely agent in the destruction of the skin.

Fourth. The purely mechanical effect. It is plausible to suppose that material particles moving with great speed, may by purely mechanical impact and unavoidable heating at such speeds be sufficient to deteriorate the tissues.

As a means of preventing these ill effects, Mr. Tesla has suggested that the part of the body exposed to the rays be covered by a thin aluminum screen and that this be grounded to prevent the electricity from coming in contact with the skin.

To prevent the action of the ozone a thin layer of fluid, a wet cloth laid over the parts is sufficient; he suggests furthermore that no exposure be made with the tube nearer than fourteen inches.

In every case where this dermatitis has been noticed the patient was subjected to prolonged and repeated exposures varying in length from twenty minutes to two hours, or to consecutive exposures of the same areas of the body; again, the tube has been in close proximity to the skin; in one case where serious results followed it was only an inch away, and several exposures were made of forty-five minutes each.

With the powerful apparatus and tubes and improved technique, it is unnecessary to make any exposure over ten minutes and the great majority of them are under a minute. Again, our tubes are rarely nearer than eighteen to twenty-four inches from the body.

It is an unfortunate fact that ill results have occurred, for they militate against the widespread use of the rays and make people fear their application.

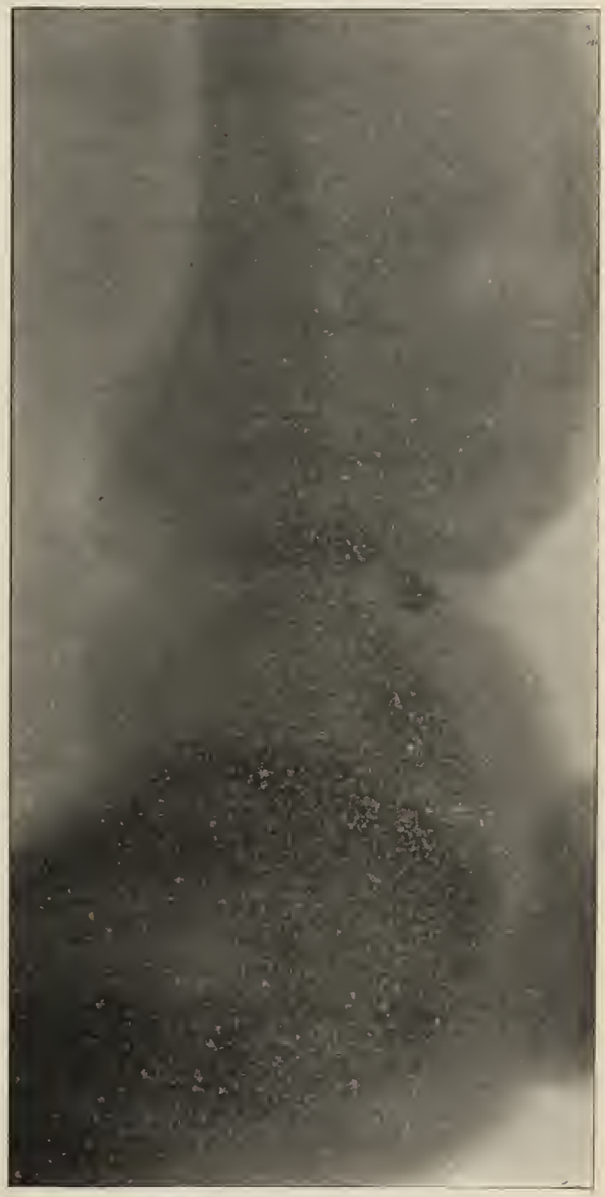
I appreciate that the theoretical consideration of a subject carries much less weight than its practical presentation; therefore, to illustrate the surgical adaptability of the X-rays, I quote the following cases:

Case. 16. Mr. F., Grand Forks, N. D.; referred to me by Dr. Walter Courtney, of Brainerd. Mr. F. was sent to him with a diagnosis of rheumatism. Dr. Courtney suspected a bullet in the knee joint, as the man had been shot high in the thigh in the early fall. The fluoroscope revealed a .22 calibre bullet in the right knee joint. A skiagraph was taken and sent along with the patient back to the surgeon; it was not thought advisable to remove the bullet at that time.

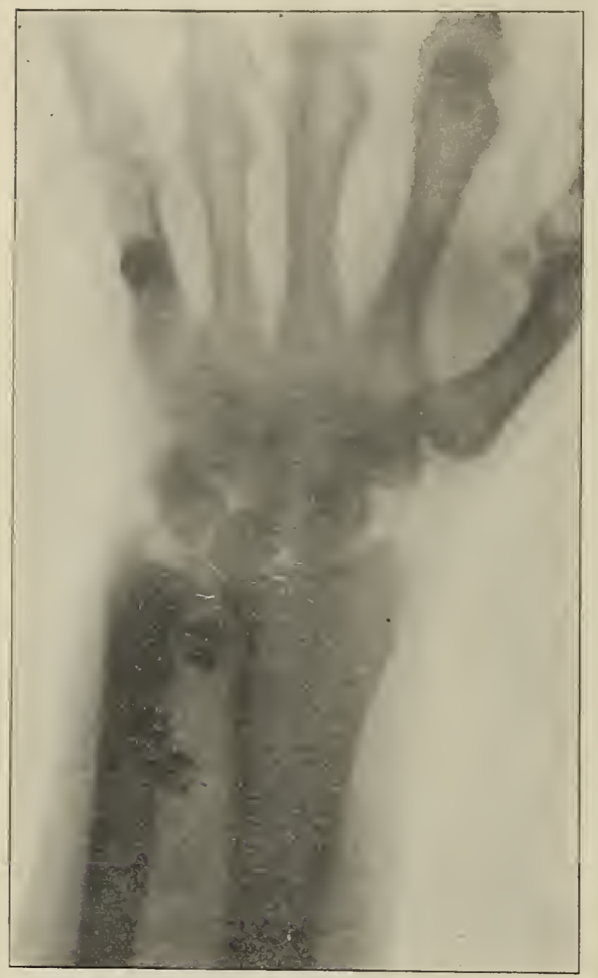
Case 18. Mr. B., in September, 1887, shot himself in left foot, necessitating amputation of the great toe, the foot being badly lacerated; a discharging sinus persisted for some time. The fluoroscope revealed five large shot and a fracture of the second and third metatarsal bones. Two of the shot were removed by the aid of the fluoroscope.

Case 19. Mr. S., Northern Pacific brakeman; shot in right elbow; wound probed but no bullet found; it was believed to be imbedded in the muscles of the forearm. Fluoroscope revealed no bullet. It struck the acromion process and glanced; while plowing a furrow in the tissues it was not imbedded.

Case 20. Miss X., colored; referred by Dr. Frank Wright; received a charge of buckshot in the right arm, four in the triceps muscle, one two inches above the wrist, one wedged between the ulna and radius at the wrist, and one in the hand. The fluoroscope revealed them. Skiagraphed and returned to her surgeon. The shot were



Bullet in Knee Joint.



Buckshot in Hand and Wrist.

not removed as the patient was suffering from secondary syphilis.

Case 27. Mr. K., Utica, S. D.; referred by Dr. Dunsmoor. Tumor in lower third of right femur. Fluoroscope revealed bone shading off into tumor; skiagraphed the same. Diagnosis, osteo-sarcoma. Dr. Dunsmoor amputated at hip joint. Microscope verified diagnosis.

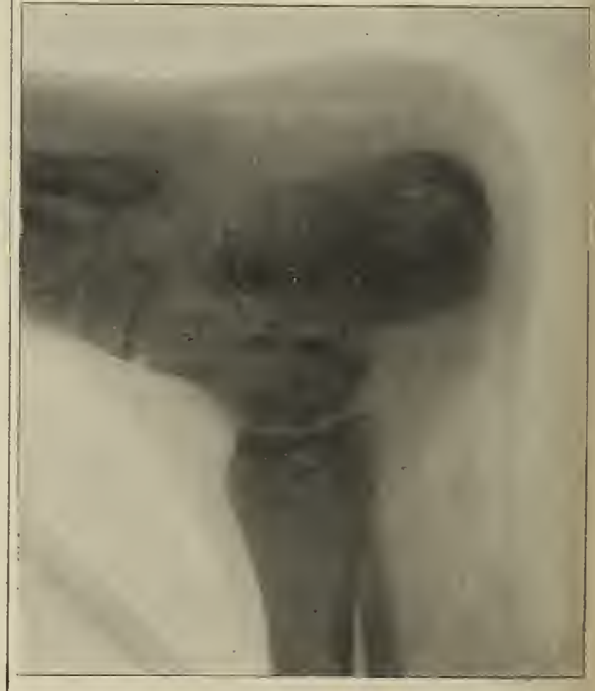
Case 34. W. H., age 12 years; referred by Dr. Fitzgerald. Fluoroscope revealed old backward dislocation of radius and ulna; fracture of olecranon, and joint capsule filled with fibrous adhesions. Dr. Fitzgerald operated, cleaning fossae and capsule and reducing dislocation, obtaining a perfect result.

Case 37. Mr. M., Minneapolis & St. Louis brakeman; referred by Dr. Frank Burton; right hand pinched in making coupling. Cellulitis and swelling so great as to prevent diagnosis of the condition of the bones. Fluoroscope revealed fracture of third metacarpal bone at the middle of shaft and partial crush of the head of the bone.

Case 42. M. S., age 7, Valley City, N. D.; referred by Dr. Gerish. Hand badly swollen, last two fingers flexed and numb. Two weeks previous the child ran a needle into her wrist and broke the point off, leaving it imbedded. Fluoroscope revealed it immediately; under the instrument I incised and removed the fragment at once; flexion and anaesthesia of fingers cured.

Case 43. E. M. B., age 16 months, from Rice Lake, Wis.; referred by Dr. Robert Wheaton. Five days previous the child swallowed an open safety-pin. Fluoroscope revealed the pin in the ascending colon, open, but pointing the right way. As the child had been on an appropriate diet, I refused to operate, holding that if it had gone so far it would go further, an assertion that was verified by pin being passed the next day.

Case 44. G. C. D., bridge builder for Chicago, St. Paul, Minneapolis & Omaha railroad; referred by Dr. Dunsmoor. While drilling a girder, a small chip of steel flew off clamp and buried itself in the heavy muscles of the calf of his leg. A doctor in Wisconsin enlarged the wound of entrance, but failed to find the foreign body. Fluoroscope revealed it at once; under the instrument I introduced a forceps into the wound, opened them, watched them grasp the piece of steal, and removed the same.



Tubercular Focus in Os Calcis.

Case 46. Mrs. R., referred by Dr. Dunsmoor. Fluoroscope revealed sarcoma of right shoulder joint so extensive as to make operation unadvisable.

Case 49. Miss S., referred by Dr. Dunsmoor. Domestic with a piece of needle in her hand, which was puffed and tender. Fluoroscope revealed fragment at once. Under the instrument I incised and removed it with forceps.

Case 50. D. B., Broadhead, Wis. March 7, 1897, he shot himself in the left leg with a charge of bird shot. As many of the shot as could be found were removed shortly afterwards. Wound very slow in healing; discharging sinus persisted; fluoroscope and skiagraph revealed 56 small shot scattered the length of his leg, and a small piece of bone just above the os calcis behind the tendo Achilles; operation for their removal not attempted as yet.

Case 55. J. A., age 32, from City Hospital. For five years he has suffered from an obscure disease of the joints, believed to be arthritis deformans; skiagraphs disprove this diagnosis as there is an entire absence of the characteristic exudate and hypertrophied villi about the edges of the cartilages. These radiographs show the dislocations of the wrists, fingers and ankles, and confirm the belief that the trouble is due to some obscure disease of central origin.

Case 57. A. M. C., age 3 years; referred by Dr. Barrett, of Glencoe, Minn. Nine days previous the child swallowed a small tin whistle, the size of a quarter; she coughed and vomited several times and complained of pain. Since then she has been unable to swallow anything but liquids, awakens at night, puts her hands to her throat and chest complaining that they hurt her. Dr. Barrett has had her stools watched but no whistle has passed. I examined the child's body with the fluoroscope and located the whistle in the oesophagus, just back of the sterno-clavicular articulation. She was chloroformed, and when quiet a five-minute exposure was made. With a mouth gag inserted we passed various styles of forceps and bristle probangs into her oesophagus, but without success, as they one and all failed to retain their hold on the beveled edge of the whistle. Finally with my finger in her gullet, I was able to feel the upper edge of the whistle; using the finger as a guide I passed a right angled laryngeal polypus forceps with sharp cutting edges that took a firm hold and removed the whistle. The negative was not developed until after the whistle was removed.

Case 62. G. S., age 15 years. For a year the boy's right ankle has been tender; he thinks the strap fastening his skate started the trouble, perhaps aided by a fall in the gymnasium. For the past two months the ankle and heel have been badly swollen, tender, hot and excessively painful. General health good. Three surgeons after examining the boy, suspected sarcoma from the rapidity of the growth, and told the mother that if it proved to be such an amputation of his foot would be necessary. The mother recoiled from such a radical operation, and took him to see a homoeopath in St. Paul, who pronounced the trouble tuberculosis of the ankle joint, and advised that the ankle be put in a plaster cast for a year. She then took him to an "osteopath," who told her that there was a bone out of place, and that he could cure the limb by massage and manipulation, which he proceeded to give, with the result that the foot got rapidly worse. I examined the ankle and found a circumscribed tubercular focus in the middle of the os calcis; a radiograph demonstrated that the trouble was localized in this bone. Using the skiagraph as a guide, I cut down over the abscess, chiselled the bone, opened the cavity, curretted out the tuberculous matter and packed with iodoform gauze. Four months late from extension of the disease I was obliged to make a resection of the ankle joint.

The operations in cases 42, 44, 49 and 57 were made simply using the fluoroscope as a guide and with the room dark.

These cases demonstrate the ease with which diagnoses are made and surgical operations aided by the use of the X-rays, fluoroscope and radiograph.

Skiagraphs are already playing an important part in medico-legal cases when introduced as testimony, as their evidence cannot be impeached.

213 New York Life Building.

APPENDICITIS.*

By G. G. Eitel, M. D.,

Minneapolis.

So much has been written upon appendicitis by the leading physicians and surgeons of Europe and America, that I hesitated in bringing the subject before this learned society for its consideration. I find, however, that there are still some features of the subject, especially in the treatment of the disease, that are not fully settled, and consequently furnish material for warm discussion among the members of our profession.

Appendicitis is unquestionably the most common acute inflammatory disease of the abdominal viscera. Both sexes, from early childhood, to old age, are alike liable to become its victims. From clinical observation and study I am led to believe that it furnishes a greater mortality than all the other acute affections of the peritoneal cavity combined. The number of deaths from this disease is much greater than is generally supposed. Statistics cannot be relied upon, as a great many deaths charged to other diseases are due to appendicitis.

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* Read before the Section of Surgery of the Minnesota State Medical Society, July 18, 1897.

In the mortality record of the Minnesota State Board of Health for 1896, seventy-three males were reported as having died of appendicitis and thirty-four of peritonitis. Of the thirty-four cases so reported a large percentage were, without doubt, due to appendicitis.

In the city of Minneapolis from January 1st, 1890, to January, 1897, fifty-six males were reported as having died of appendicitis, thirty-eight of peritonitis and thirteen of inflammation of the bowels. During the same year nine females are recorded as having died of appendicitis, sixty-seven of peritonitis and four of inflammation of the bowels. The probability is that all of the males with, say, an exception of six per cent, and also a large number of females, reported as having died of peritonitis and inflammation of the bowels, actually died of appendicitis.

The mortality list from this disease would be greatly increased if we only knew the number of deaths reported as caused by typhoid fever and other diseases, which were, in fact, caused by appendicitis.

It is this large mortality, coupled with the constant mistakes that are being made by medical men in the diagnosis of this disease, and also the difference of opinion as to the relative value of the therapeutical and surgical treatment, that form my apology for bringing this subject before you.

In the annals of medical literature the inflammation of the appendix vermiformis has been known by different names, such as phlegmon of the right iliac fossa, typhlitis, perityphlitis and appendicitis.

In 1757, Mastivier, of Paris, reported a case of a large abscess in the right iliac region, which he opened by an incision, evacuating a large quantity of pus. The patient died, and the post mortem examination revealed a gangrenous appendix, which is said to have contained a pin and faecal concretions.

In 1833, Dupuytren also made an incision into the abdominal parietes in a case apparently of this kind, and evacuated a considerable quantity of faecal pus. The wound remained fistulous and the patient survived thirteen months with four fistulae communicating with the seat of the disease. Dupuytren thought the disease originated in the caecum.

Burne, in 1837, in the 20th and 22nd volumes of the Chirurgical Transactions, and the elder Pepper in the Philadelphia Philosophical Transactions, volume 296, in 1856, gave excellent papers on inflammation of the vermiform appendix. There was also an article by Dr. A. Smith in the "New York Journal of Medicine" for November in 1856, in which the appendix was claimed to be the seat of the inflammatory disease so often found in the right iliac fossa, and which was regarded by the profession generally at that time as originating in the caecum.

R. P. Howard, of McGill College, in a clinical lecture delivered in January, 1857, on "Inflammations and Perforations of the Appendix Vermiformis," (published in "Medical Chronicle," volume 5, May, 1858), gave a picture of the disease, which would make it quite difficult for an artist, even at this day, to improve upon. His treatment was essentially the same as that given by the best medical practitioners of today. He said: "Most of these cases die sooner or later of general peritonitis," and wished it were only possible to operate upon them and remove the appendix early in the disease.

In 1867, Willard Parker, of New York, advocated operations in these cases and emphasized that seventy-five per cent of all cases could be saved by early operations.

Much of interest could be said in the way of the history of appendicitis, if time would permit.

The causes of appendicitis are predisposing and exciting. Of the first may be mentioned sex, age, blood supply and the position of the appendix. The disease is far more prevalent in the male than in the female. It will be safe to say that seventy-five per cent of all cases of appendicitis are found in the male sex. Of sixty-one cases operated on by myself only five were females. Dr. Murphy in his latest tabulated report of one hundred and seven cases gives fifteen as females. In my own cases, as in those of Dr. Murphy, the average age of the patient is twenty-four years. Some writers have stated that eighteen years was about the average. Children and the old are comparatively free from the disease, although cases are met with from time to time among them.

The blood supply to the vermiform appendix is generally through one artery, i. e., the appendicular artery, which passes along the margin of the meso-appendix. In the female, however, there is frequently an additional blood supply from an artery derived from the appendiculo-ovarian ligament. (The artery is a branch of the ovarian). The appendix is decidedly smaller in the female than in the male. This and a better blood supply and less exposure to physical exertion may account, to some extent at least, for the disease occurring less frequently in the female.

The appendix being so situated at the most dependent part of the caecum, it readily becomes a pouch into which the liquid faecal matter easily finds its way. The mucous membrane of the appendix possesses some of the same physiological functions as the intestines themselves. When the faecal matter passes into the appendix the fluids are absorbed leaving the solid matter in the lumen, where in combination with some of the lime salts, and inspissated mucus, it forms concretions which often resemble in form grape seeds, orange seeds, and beans.

In localities where the water contains large quantities of lime salts, I have noticed that these concretions are quite hard and resemble to some extent, the phosphatic variety of urinary calculi in both structure and consistency. These concretions, once formed, will injure the mucous membrane of the chamber in which they are contained and act as a predisposing factor to appendicitis.

Irregular evolution, or angular bends in the appendix, forming strictures, where the blood supply is interfered with, have an important influence in predisposing to appendicitis. The patient may from time to time, for months and even years, suffer slightly from what he calls (his physician often agreeing with him), "bilious attacks." He is probably somewhat constipated, has a coated tongue and may have some obscure colicky pains, all of which symptoms may, with a few days rest, diet and a cathartic, almost entirely subside. Over physical exertion, or excess in eating and drinking,or often the ingestion of certain foods, which are not properly digested and absorbed, are liable to irritate the already affected member, and at any time result in an acute exacerbation, which may be called simply a "bilious attack," but would more properly be termed "catarrhal appendicitis." Under different conditions, with probably the presence of pus producing microörganisms, which are, no doubt, the chief exciting cause, we may have a severe inflammatory process set up, which may readily go on to suppuration and produce such symptoms as are familiar to us in real appendicitis. Time will not permit me to deal fully with the pathology of the disease.

SYMPTOMS.

The symptoms of appendicitis are few and in most cases quite pronounced. In the majority of cases acute pain is the principal symptom, which is often of a colicky nature and is frequently located in the umbilical and epigastric regions. Usually within a few hours after the onset of the disease, the pain becomes more definitely localized in and around the appendix. But as the appendix is not always found in the right iliac fossa, we should not be too hasty in excluding appendicitis if the pain is located in any other part of the abdominal cavity or pelvic region. The inflamed appendix has been found in the hypochondrium, in the left iliac fossa, in the true pelvis, and in the hypogastric and umbilical regions. Its location and position play most important parts in the prognosis of appendicitis, and this is especially true if suppuration takes place.

It will readily be seen that if the appendix lies near the median line of the abdomen and under the ileum, and suppuration takes place, the chances for recovery are much less favorable than if the appendix is close to the side of the abdominal wall in the right iliac fossa.

Tenderness upon pressure over the appendix, generally over McBurney's point, is a constant symptom in acute and chronic cases. The tenderness is at times made out with difficulty on account of the rigidity which the abdominal wall assumes over the inflamed area.

Vomiting in many cases is a concomitant symptom, with pain, tenderness and rigidity of the abdominal muscles. If the vomiting persists after the pain has become localized it should be regarded as an unfavorable symptom.

Constipation is present in most cases, but occasionally the disease is ushered in by diarrhoea, followed by constipation. The tongue is more or less coated and often becomes parched and in bad cases fissured. In all cases of appendicitis there is a rise of temperature at some time in the course of the disease, which bears no relation, however, to the gravity of the case. The temperature may be 103 degrees Fahrenheit, and even higher, and the case run a favorable course; or the temperature may not go beyond 99 degrees Fahrenheit, and have a gangrenous appendix and perforation inside of twenty-four hours, as the following case, referred to me by Dr. C. E. Dutton, will illustrate:

A Mr. H., age 28, who had always enjoyed splendid health, with the exception, according to his own expression, of "several severe bilious attacks" each year during the past ten years. He awoke at 3:00 a. m. on the seventh of last April with a severe pain all over his abdomen, which soon became localized at McBurney's point. Called his physician at seven a. m., who at once made a diagnosis of appendicitis and urged an operation. At one o'clock I saw the patient in consultation. He had a temperature of 98 degrees Fahrenheit, considerable pain, a pulse of 116, an anxious countenance and restless. He was taken to the hospital and operated upon between two and three o'clock the same day. We found the appendix gangrenous and perforated. After removal of the appendix and a thorough mopping out of pus and debris from the abdominal cavity, the soiled portion of the cavity was carefully packed with iodoform gauze.

After a considerable struggle for about a week the patient began to improve and finally made a good recovery. He informed me that he had an uneasy feeling in the epigastric and umbilical regions about a week prior to the final attack.

The diagnosis of appendicitis should be made by the attending physician within the first twenty-four hours. In some obscure cases where the symptoms are not well marked, and a differential diagnosis has to be made between typhoid fever, Pott's disease, hepatic and renal colic, enteralgia, food poisoning, etc., it is excusable if the physician is somewhat perplexed and delays for a time in making a correct diagnosis. But too long a delay may jeopardize the life of the patient and cloud the reputation of the medical man with grave suspicions as to his ability.

A correct diagnosis may be made of inflammation of the appendix, but it is very much to be regretted that with all our knowledge it is impossible for us to say with any degree of certainty what the exact pathologic conditions are, especially early in the course of the disease. In many instances where the patient seems to all appearances much improved, he is in reality a great deal worse. Cessation of pain and a fall in temperature often means that there is an abscess and that perforation has taken place, or that there is necrosis of the mucous membrane of the appendix and obstruction of the lymph radicals so that the process of absorption of ptomaines has ended; or that the entire appendix has become gangrenous.

The character of the pulse, if closely watched, will be a very good guide as to the progress of the disease, although in some cases even this classic symptom fails to give sufficient warning of impending danger, as the following case will illustrate:

A Miss A., was taken April 30th with a burning pain in the stomach, which quickly localized itself in the region of the appendix. Vomiting, a slight rise of temperature and a falling of the pulse rate to sixty beats per minute. The vomiting ceased and the temperature never went above 102 degrees Fahrenheit. Colicy pain and tenderness in the right iliac fossa. A dry, coated and fissured tongue. Dullness on percussion over the appendix and rigidity of the abdominal muscles. There being a history of two previous attacks, one in August, 1895; and the other in January, 1896, the attending physician, Dr. T. J. Reid, advised an immediate operation. The pulse at no time during the attack went above 96. May tenth I operated and found a large inflammatory mass lying deep in the right iliac fossa that contained a quantity of pus. Had the attending physician relied upon the comparatively mild symptoms, he would have postponed operating until perforation had taken place, and as there were no adhesions or walling off of the abscess, the only result that could have followed perforation would have been general septic peritonitis and death.

TREATMENT.

It is well known that there are many individuals who suffer from attacks of appendicitis, and who recover, at least for the time. The so-called "bilious attacks" keep recurring, and come to be regarded by the patient as a kind of necessary evil from which there is no escape. The treatment is simple and expectant, but not curative. Sooner or later a more severe attack is experienced in which calomel, magnesia, morphine, rest and counter irritants, hot or cold applications, are all useless to stay the rapid progress of the diease, which may vary from two days to several weeks.

That a well defined case of appendicitis permanently recovers under medical treatment is a question open to discussion. In my experience with the disease, I know of none. When complete cures are reported we have good reason to doubt the correctness of the diagnosis, or to ask that more time may elapse, expecting that there will be a recurrence, although years may have passed since the last attack.

Medical treatment is open to the following objections: The best and most encouraging assurance that the physician can give the patient is that he may not have any more attacks, but is liable to have one at any time. It may be months, or even years, but he is never to forget that when he is least expecting, it may suddenly come upon him. There is nothing certain in the case. Verily, a poor comforter is the family physician under such circumstances. The patient feels that he is warming a serpent in his abdominal cavity, which may at any time rise up and destroy him. The worry and constant dread that such uncertainty creates robs life in a great measure of its happiness. A patient told me that during six years while suffering from time to time with mild attacks of appendicitis, in addition to the money spent on druggists and physicians, he was constantly nervous and worried, and had lost about one-third of his time.

The fact is patent to all members of the profession that it is impossible to say, early in the course of the disease, what cases are going to terminate favorably. The symptomatology of the disease is so unreliable that what appears to be a mild case is often in fact a most dangerous one, demanding an immediate operation. To wait and rely on medical treatment until suppuration or perforation has taken place is to jeopardize the life of the patient. Procrastination and hesitancy at the bedside in such cases have filled many untimely graves. It is easy to assert in our associations that favorable cases should be given over to the physician, while those that are likely to terminate fatally should be handed over to the surgeon for operation. I say to my brethren in the profession that neither you nor I can draw the line between favorable and unfavorable cases. But even if it were possible to do so, it is still doubtful if medical treatment in mild cases should be recommended. To admit that there is a likelihood of other attacks, which may be severe and even fatal, is to acknowledge that medical treatment of appendicitis is at best but temporary. It can promise nothing to the patient for the future, but leaves him worried and fearful as to what the next day, or month, or year, shall bring forth.

It is a well established fact that we cannot determine the pathological condition of the appendix in a given case unless an abdominal section be made. We may have had a large and varied experience in physical diagnosis, and still be unable to say whether or not a patient suffering from an acute attack of appendicitis is going to recover under medical treatment. The favorable symptoms may prove to be but the stillness before the impending storm.

With our present knowledge of this disease, there is, to my mind, but one method of treatment—early operation—in all cases, unless there be well defined contraindications. "Early operation in all cases" should be the watchword of the profession today. If there is a dissenting voice, the loss of one or two patients through delay will be likely to convert him from the error of his way.

I advocate, and I take this opportunity to urge upon the profession, early operation in all cases. Surgery cures permanently, and, therefore, relieves the mind of the patient from all future anxiety as to his appendix vermiformis. The expense of an operation may seem to be very great, but in the end it is found to be but trifling as compared with the loss of time, anxiety and expense of recurring attacks, saying nothing of the grave danger to life itself. The mortality is very low, being less than one per cent when the operation is performed by an experienced surgeon under proper conditions. It may be said, and truthfully, that the gynaecologist has in his zeal removed ovaries, tubes and uteri that might have been spared to the individual. The loss of such is more or less a mutilation and a sacrifice of organs that play a most important part in the physiological functions of the body. The removal of an appendix vermiformis is open to no such criticism. To take it away is to rob the patient of nothing but an enemy. Its very presence is a sword of Damocles ready to fall upon the unsuspecting victim at any moment. There are none of us but would be glad to know that a thief had come in the night and stolen our appendix while we slept.

The operation for appendicitis, as the only correct method of treatment, is, therefore, free from all criticism on the ground of mutilation and robbing the patient of an essential organ of the body.

To secure the best results the conditions surrounding the patient must be favorable. The operator must possess experience and skill in using the knife. The technique must be perfect and not be slighted in the least. To meet successfully all the contingencies that may arise in operating in cases of appendicitis requires a thorough surgical training, coupled with a natural adaptation or fitness for the work in hand. If fistulae, or herniae, or hemorrhage, follow an operation it is invariably the result of poor technique.

The surgeon who enters upon this field of abdominal work has a splendid opportunity to enhance the dignity of his profession. To relieve suffering and to snatch good and useful lives from the shadow of death in a noble recompense for the surgeon, that outweighs, bears down and disarms all criticism.

THE DIFFERENTIATION OF EBERTH'S GERM FROM COLON.

By George D. Perkins, M.

St. Paul.

I wish to report a few experiments which I made in the laboratory for the differentiation of Eberth's bacillus from the so-called colon germ. In doing so I shall avoid mentioning work done by any one else, except where I have used it to guide me in arranging the order of my experiments or when I have used a new medium recommended by another.

Before tabulating my experiments I wish to accord the utmost thanks to my revered teachers who, by their indefatigable work and kindly advice, gave me an incentive to labor in the field of science.

In 1893 there was an epidemic of typhoid fever in one of the towns of the upper peninsula, the city water was sent to the laboratory for analysis, and a toxicogenic bacillus was found in it which did not correspond in many respects to Eberth's bacillus, nor was it the colon bacillus. One of the cases during the epidemic terminated fatally, and Professor Vaughan obtained a piece of the spleen from which cultures were made. On comparing the germ thus obtained with the one from the water it was found to be identical. This germ I did not investigate myself as there was another man at that time who did the bacteriological analysis of water sent to the laboratory for examination; however, it is certain that the germ was not Eberth's for it produced gas in gelatin, nor was it the colon as it did not give the indol reaction.

The following year the water examination was done chiefly by myself; I allude to the bacteriological analysis alone. The method used was that devised by Vaughan and taught in the University of Michigan.

During this period, under the direction of Professor Vaughan, I isolated four or five germs which closely resembled Eberth's bacillus, but differed in some of the reactions given by this organism. They were quite different from the colon. By colon I wish it understood that I mean only that germ which gives all the reactions which I shall mention in the differential acts between it and Eberth's germ. I regret that these germs were lost during "house cleaning" in summer. A brief outline of the work done on these germs will be given below.

Differential tests between Eberth's bacillus and the colon bacillus. I shall first define what I mean by Eberth's bacillus and colon bacillus. The former is a motile microörganism having a rod shape, differing from many similar germs, bearing, though not in every case of the disease, an etiological relation to typhoid fever.

The colon bacillus is a short almost "coccus" germ, never showing decided motion and never being a causative factor in typhoid fever.

MORPHOLOGY.

There is nothing of importance here except, in passing, to mention that the tendency to form threads in Eberth's germ should always be borne in mind, and that this is more marked in some media than in others, and that the age of the culture also has some influence. The colon does not form long filaments.

MOTILITY.

This characteristic varies considerably in the former germ according to the pabulum, under the influence of temperature, chemicals and the age of the culture. Beef tea ordinarily prepared is about the best medium in which to grow it, when motility is to be demonstrated. When kept at room temperature and transplantations not frequently made the motion of this germ is lessened and a tendency to grouping frequently observed. Exposures to temperature over 39° C. seem to have the same effect. The addition of certain compounds greatly influences the degree of motility; for instance, when ammonium hydrate, not in sufficient quantities to inhibit growth, is added the bacillus becomes almost motionless.

Nuclein, the 5 per cent. solution prepared by Parke Davis & Co., of Detroit; citric acid, to slight acidity; very small portions of acetic acid also have an inhibitory action on motility.

In the colon bacillus marked, independent motion is not seen.

ACID PRODUCTION.

The statement is usually made that Eberth's germ does not redden blue litmus gelatin after 24 hours growth in this medium at a temperature of 37°, 38° C. In my experiments I never found this so; in every instance blue litmus was reddened and in most cases before 20 hours had elapsed. The medium used was 10 per cent. gelatin ordinarily prepared to which 2 per cent. glucose and litmus had been added. Litmus gelatin without sugar, and litmus gelatin made from meat fermented to rid it of the sugar were also tried; in every case the reaction of Eberth's and colon germs was the same.

The production of acid in milk by Eberth's germ I failed to get in any of my experiments, the reaction after six days growth in the incubator failing to show any acid reaction, while the colon produced acid in every case in less than 24 hours. And this is not surprising when we recall that the former germ has no action on blue litmus when added to milk while the latter reddens it in about 18 to 20 hours at 38° C.

Distilled water to which one per cent. peptone, one-half per cent. of salt, two per cent. cane sugar, are added makes a good medium for the differentiation of these germs. Eberth's has no action. The colon turns it red in 18 to 20 hours with production of gas.

COAGULATION OF MILK.

Eberth's germ never coagulates milk while the colon on the other hand always does and in less than six hours when kept at body heat. This is our most important differential test between these two organisms, and it has been utilized in the laboratory for the isolation of the "typhoid" germ from water, wine, fæces and the like. Pure milk should be used, for if sodium carbonate be added the colon will not in the usual time cause separation of the casein.

GAS PRODUCTION.

In no medium used, even where either of the sugars has been added, does Eberth's bacillus produce gas. The colon germ does, and that too when sugar has not been added. Too much reliance however should not be placed on this test as the gas may subside before examinations are made, or may develop after they are completed, but when used with the other, more certain tests, it is a valuable auxiliary and should always be made.

INDOL.

For this test we use

Distilled water, 100.
Peptone, 1.
Sodium chloride, 0.5.

Dissolve on water bath; filter, fill, sterilize, etc. Eberth does not give a pink color when grown at 37°-38° C. on the addition of sodium nitrate and sulphurous acid. This reaction may be delayed, so should be made at intervals of 24 hours for 3 days.

GROWTH ON POTATO.

Solanum tuberoseum and convolvulus potato were both used. If the vegetables show an acid reaction when raw they make a good differential test. Eberth gives an invisible growth; colon a thick, shiney, whitish growth; then the former, as a rule, grows in long threads and the latter is oval.

USNER'S POTATO GELATIN.

I have not been able to notice any marked difference between these two germs when grown on this medium; of course, the Eberth colonies are not as luxuriant as the colon colonies, but when one remembers the different grades of development of the colonies on a plate inoculated from a pure culture of either of them, he is naturally dubious as to the utility of the method which depends upon the rapidity of development for the differentiation of the colonies of these two germs.

Vaughan in 1889-90 isolated from water four toxicogenic microörganisms which he named Bacillus Venenosus, Bacillus Venenosus Brevis, Bacillus Venenosus Invisibilis, Bacillus Venenosus Liquefacieus respectively; these germs corresponded in every respect to those isolated in '93-'94 from a similar source. The peculiarities of each are briefly as follows:

From the above table it will readily be seen that neither of these germs answered the tests for the identification of Eberth's or the colon germ.

There was never any positive proof that either of these germs did cause typhoid fever, but in every case the germ obtained was from water which had been used by the persons who had suffered, succumbed or were suffering from typhoid during an epidemic, and again, it had been in many cases proven that not one of the persons who had obtained their water from other sources had suffered from this disease, and another strange thing is that in no instance was Eberth's germ found in any of the waters.

I shall outline the method used for the isolation of Eberth's bacillus, and incidentally mention the scheme devised by Prof. Vaughan, and taught in the University, for obtaining poison producing organisms from food.

First, all possibility of contamination in transit should be guarded against. The bacteriologist who receives a sample of supposed poisonous material should insist on the seal being intact when delivered, and that the seal be placed by the person sending the suspected substance.

On receiving the parcel it should be immediately opened, placed in a convenient sterile glass dish if solid and examined with sterile instruments; then small bits placed under the microscope. From the surface and from the inner parts small portions are placed in beef tea and allowed to grow at the temperature of the body, duplicates being made and grown in hydrogen. If the material sent be fluid, then sterile pipettes are used and 1-200 inoculated into tubes and treated as above. These are allowed to remain for 24 hours in the incubator when they are removed and 1 cc. from each tube (five to six tubes are usually made), is injected. White rats are used, one rat to each tube. If only two tubes are made two rats are used to each tube, in every case the animal receiving 1 cc. of the culture intraäbdominally. Gelatin and duplicate agar plates are made at the same time as the beef tubes, the latter placed in the incubator and the former, of which only one set is necessary, kept at room temperature. One set of agar plates is grown aërobically, the other in hydrogen. When any of the animals die they should be at once examined and plates made as above from spleen, liver, peritoneum and kidneys. Hanging

	MILK.	LITMUS GEL.	INDOL.	GELATIN SHAKE.	MOTION.	POTATO.
Bacillus Venenosus	o	o	o	x	active.	small growth.
" " Brevis	o	o	o	x	active.	good growth.
" " Invisibilis	o	o	o	x	slow.	Invisible.
" " Liquefacieus	x	x	o	gas and liquefaction.	slow.	fair growth.

o—Milk, not coagulated.
o—Litmus Gel., not reddened and litmus gelatin reddened.
o—Indol, not pink color on addition of sodium nitrite and sulphuric acid.
x—Gelatin shake, gas production.

drops and permanent, stained preparations are made for comparison. When the plates from the animals develop they are compared with those from original cultures and microscopic preparations made and preserved. Should there be similar colonies on these two sets of plates the usual analytical tests are made.

This is in substance the method which has been taught for years in the laboratory for the isolation of toxicogenic microörganisms from any and every source, and it has worked so well that neither in this nor in the old country has any method of greater utility been found by which to replace it.

In spinal cases where the isolation of Eberth's germ has been the only object, a modification has been used, and this consists in dispensing with the animals. From the suspected water, urine, fæces, etc., liquefied gelatin tubes are inoculated, plated and kept at a temperature of 21° C. as nearly as possible; this should not be exceeded, as 10 per cent. gelatin would liquefy. Summer temperature may be regulated by placing a cylinder in one of a larger diameter but shorter, and allowing a stream of cold water to flow into the outer vessel and placing the plate in the inner. Should this not be convenient, Sternberg recommends a 20 per cent. gelatin, having used it with good results in Cuba, where the temperature is always high.

Colonies usually develop in 24 to 30 hours; at the expiration of 36 hours the plates are examined for those colonies resembling Eberth's colonies. If there be such, about 30 ordinary milk tubes (if colonies are very abundant) are inoculated promiscuously and placed in the incubator for 24 hours. Every tube which is coagulated is discarded and from those not coagulated; tubes of the following media are made: Litmus gelatin, potato, pepton-salt solution for the indol reaction; the same and litmus and 2 per cent. cane sugar, beef tea, ordinary and glycerine; litmus milk. These are placed in the incubator for 24 hours; those litmus gelatin tubes not reddened in 24 hours are not used. Should a luxuriant growth form upon the inclined surface of the potato tubes the growth is not that of Eberth's germ; the indol reaction if negative after 7½ hours eliminates the colon germ from the particular tube used for these inoculations; the litmus in the cane sugar solution is not acted on by Eberth's bacillus. Beef tea, the germ is motile and forms threads in this medium; litmus milk is not acted on. At the same time the above tubes are made, gelatin "shake" tubes are inoculated and allowed to solidify and develop at warm temperature; most germs similar to Eberth's develop gas in from 24 to 36 hours, while this never produces gas; however, it is well to keep all "shake" gelatin tubes for 72 hours under observation as the growth may be delayed at room temperature.

These tests easily differentiate the colon from Eberth's germ and, indeed, we have never found any difficulty in isolating either of these germs from material which contained both of them. I shall speak of this again. There are some other germs, however, which give us trouble to identify.

Vaughan's four water germs which he isolated and described in an article to the *American Journal of Medical Sciences*, Aug., 1892, require far more care to separate from Eberth's germ than does the colon. It will be remembered that three of these did no. coagulate milk; one did. With the latter we will not deal as this one test alone differentiates it from Eberth's germ. With the former it is different, for they not only did not act on milk but failed to give the indol reaction, and these are two of our best tests for the identification of Eberth's bacillus. Then, again, they produce gas only after some days growth at room temperature (3-3½), but in every case they failed to redden blue litmus gelatin, to which 2 per cent. glucose was added, in 24 hours at 37½-38° C. This, really, along with the morphological characteristics, is the only reliable test between these germs and Eberth's.

After I had examined several samples of water sent from districts where there had been typhoid epidemics I questioned the accuracy of our method. I therefore used control water afterwards to check my work and the process in use.

A sample of water was sent to us from a city in Minnesota where there was an epidemic. I made the usual cultures from the water. To 1 liter of water I added a small, beef tea tube of Eberth's bacillus, 24 hours old, and from this water after agitation I also made cultures. I found no trouble in isolating the added germ. Again in another independent experiment I added one-half the quantity of Eberth's germ and two tubes of colon. With our method the former was easily isolated. Many more similar experiments were made with like results.

In the summer of 1896 I had a chance to work on a case of typhoid fever (male), the symptoms of which were obscure. The urine was brought to use for analysis. From it I isolated an organism which more closely resembled the colon than the Eberth's bacillus. It, however, was motile and did not give the indol reaction in 72 hours.

The patient improved, but later had a relapse and was taken to the University Hospital, Ann Arbor. While there his urine was again examined, also his fæces. From each a germ was obtained which corresponded in every respect with the one originally obtained. The diazo reaction was negative till the relapse, or it did not appear till very late in the primary attack. He was treated by baths and recovered. The Widal reaction was unsatisfactory.

About the same time another case of typhoid fever, also male, was admitted to the medical ward. When brought in the patient was in a comatose condition. Every symptom of typhoid fever at that stage was marked and characteristic. Cultures were made from his urine and fæces. Eberth's germ was found in both. After a few days he died, which was prognosticated, on his admittance, by the professor of internal medicine. The diazo reaction was always present.

We were fortunate enough to obtain a post mortem. From the spleen, heart's blood and lungs Eberth's germ was obtained. Widal's test negative. I mention these two cases as they seem the extreme conditions of typhoid fever.

Another interesting case came to the hospital a few months later. It was a very mild attack and lacked many of the characteristic symptoms of typhoid. The urine never gave Eberth's reaction. Cultures from the urine remained sterile. From the fæces a bacillus was obtained which closely resembled the colon, but which was very motile and formed long filaments in beef tea.

Widal's test here was found positive and was given more quickly and markedly than in any case I have seen. The serum was used in 5 or 6 tests. The dried blood was frequently used. It did not in any case give the reaction so markedly as did the serum and indeed in not a single case was the reaction characteristic.

All this time we had in the laboratory only 2 Eberth germs, one obtained from the Hygienic Institute, Berlin, the other was kindly sent us by Prof. Jordan, of Chicago. Prof. May, in the meantime got six Eberth germs from other sources.

The colon germs were: four from Philadelphia, three from Cleveland, one from Berlin and one from fæces isolated some months before.

We made a series of experiments with these germs using blood serum from the patient that never gave the diazo reaction. In every case a control was made and both covers (hanging drops) examined after 2 or 3 minutes. They were then laid aside and 10 or 12 hours later examined by Professor Nooy alone and his notes and mine compared; they agreed in substance. Below is a list of the tests.

Beef tea cultures 24 hours old were used. To 1 drop of the culture 1 drop of serum was added.

No.	EXPERIMENT.	RESULT.
1	Typhoid germ from Philadelphia.	Motion lost agglutination.
2	Typhoid germ from Philadelphia; control to 1.	Actively motile.
3	Typhoid germ from Philadelphia.	Motion lost, agglutination; some coccus-like forms seen.
4	Control to 3.	Motile.
5	Typhoid germ from Philadelphia.	Actively motile.
6	Control to 5.	Actively motile.
7	Typhoid germ from Philadelphia.	Motion lost.
8	Typhoid germ from Philadelphia.	When kept for 48 hours the reaction was lost and there was a tendency to agglutination.
9	Typhoid germ from Cleveland.	A few motile germs in the field.
10	Typhoid germ, control to 9.	Actively motile.
11	Typhoid germ, control to 9.	Reaction very marked; in the field were fine masses of agglutinated germs.
12	Control to 11.	Actively motile.
13	Typhoid germ from Professor Jordan.	Some grouping, but many actively motile cells.
14	Control to 13.	Single actively motile germs
15	Typhoid germ from Berlin.	Groupings loose, but marked agglutination.
16	Control to 15.	Fair motion; this germ is not at any time very motile.
17	"Colon" from Philadelphia (3).	Slight motion.
18	Control to 17.	Single very actively motile.
19	"Colon" from Philadelphia (2).	Some actively motile germs; grouping marked and compact
20	"Colon" control 19.	Actively motile single.
21	"Colon" Philadelphia (19).	Fine grouping, some cells quite motile.
22	"Colon," control to 21.	Very slow motion, germs single.
23	"Colon" Philadelphia (4).	Single actively motile.
24	Control to 23.	Very motile, tendency to form thread.
25	Typhoid germ from Cleveland (1).	Negative.
26	Control to 25.	Single well formed rods, motion not very active.
27	Colon germ from Cleveland (2).	Single, no motion.
28	Colon, control to 27.	Single. no motion.
29	Colon germ from Cleveland (3).	Motile, tendency to groupings.
30	Colon, control 29.	Actively motile.
31	Colon germ from Berlin.	No reaction, immotile, or nearly so.
32	Colon, control to 31.	Immotile or nearly so.
33	Colon, from fæces.	No motion, negative.
34	Colon, control to 33.	No motion.

Doses of nitroglycerine as large as half a grain have been used in New York with success in cases where there was impending heart failure, and Dr. A. H. Smith is quoted as saying that he believes even much larger doses may be used with safety.

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COAL GAS POISONING.

The frequency with which cases of poisoning occur from the escape of coal gas makes it important to note everything that is observed about the pathology and treatment of the condition. This is of all the more consequence because ordinary text-books upon medicine contain little or nothing upon this subject, no doubt regarding it merely as a form of asphyxia, to be treated like any other kind of suffocation, like that resulting from drowning or hanging. It was, however, long since demonstrated that coal gas when inhaled in considerable quantity produces definite changes in the blood, changes so well marked as to be recognizable by the gross appearances of that fluid, which then has a bright scarlet color even in the veins, a color that has been shown to be due to the combination of carbonic oxide gas with the hæmoglobin of the red blood corpuscles, forming what is known as carboxyhæmoglobin.

The studies of Dr. John Haldane, of Oxford, England, go to show that in coal gas poisoning practically all the injurious effect is due to the formation of this carboxyhæmoglobin, although some allowance must be made for the additional effect of the carbonic dioxide or carbonic acid gas that is always associated with the carbonic oxide. The poisonous effect is almost a mechanical one since it consists in the shutting out of the oxygen from the hæmoglobin, the chemical union of carbonic oxide and hæmoglobin being much stronger than that between oxygen and hæmoglobin, so that the condition produced is one of oxygen starvation.

Oxygen exists in the blood in two forms, viz: in a loose chemical combination with hæmoglobin and in simple solution, the proportion of oxygen in combination being greater than the free oxygen by about sixteen to one. The amount in simple solution is far too little to support life, and it is found by experiment that when carbonic oxide is inhaled so that the blood is saturated to the extent of thirty per cent. symptoms of poisoning appear in the form of dizziness, loss of power and shortness of breath. If the saturation of the blood be carried to fifty per cent. the power of motion is much impaired and the senses are affected. Beyond this point it is not safe to venture experimentally, but observations upon man and animals fatally poisoned by coal gas show the presence in the blood of carbonic oxide in proportions as high as eighty or eighty-three per cent.

Although the free oxygen in the blood under ordinary circumstances is not sufficient to support life, it is possible under certain conditions to bring about the absorption by the blood of an increased amount of oxygen even up to a point where carbonic oxide no longer proves fatal. By experiment it is found that an animal exposed to a mixture of oxygen at the pressure of two atmospheres and carbonic oxide at the pressure of one atmosphere continues to live, although breathing with some difficulty, while if the pressure is reduced the animal dies, showing that oxygen under pressure is absorbed by the blood in sufficient quantity to support life. It is found furthermore that although the affinity of carbonic oxide for hæmoglobin is about two hundred and thirty times as great as is the affinity of oxygen, nevertheless the presence of oxygen has a marked influence in driving out and keeping out the carbonic oxide from the hæmoglobin. The greater the pressure under which the oxygen acts or the greater the proportion in which it is present the greater its effect in interfering with the union between the carbonic oxide and the hæmoglobin. Thus breathing pure oxygen drives out carbonic oxide from the blood five times as effectually as does breathing atmospheric air, the proportion of oxygen in the atmosphere being, as is well known, one to five.

These facts which have been established by experiment furnish an explanation of the *modus operandi* of the chief means ordinarily resorted to in bringing to persons who have been poisoned by coal gas, that is exposure to pure fresh air, artificial respiration if necessary and in grave cases the inhalation of oxygen. It must not be forgotten however that besides the asphyxia present there are also cardiac failure and a lowered bodily temperature, both of which need attention in the form of the application of stimulants and the administration of warmth. In cases of severe poisoning it requires about six or seven hours to free the blood from carbonic oxide, but the danger to the patient does not end with the elimination of the poison; a condition of profound cell exhaustion succeeds in which the danger of infection is great, and more than one patient rescued from the state of asphyxia has succumbed to a pneumonia that began with the return of natural respiration. This must be borne in mind by those who would treat with success cases of coal gas poisoning.

BOOK NOTICES.

CONSTIPATION IN ADULTS AND CHILDREN. By H. Illoway, M. D., Formerly Professor of the Diseases of Children, Cincinnati College of Medicine and Surgery; etc. New York: The Macmillan Company. 1897. [Price, $4.00].

None will deny that constipation is a subject of sufficient importance to have devoted to it a volume of even five hundred pages, although it is somewhat unexpected to see so large a work upon this single topic. But when this book of Prof. Illoway is read there is no desire on the part of the reader to cut it short or to abridge it in any of its parts, for the conviction is irresistible that the author has not said a word too much upon his subject.

Beginning at the beginning, Dr. Illoway takes up the anatomy of the intestines, the formation of flatus, the physiology of defecation and the study of the fæces. With this foundation he proceeds to a consideration of the various forms of constipation, acute, chronic, spastic, atonic, etc., their symptomatology and differential diagnosis. Then after considering the more remote consequences of constipation he takes up the important subject of treatment to which a full half of the book is devoted.

There are few practitioners of medicine, no matter what their experience, who would not find profit in the systematic study made by this book of a condition for which the physician is called upon to prescribe with the greatest frequency. There are fewer still who would not find something novel among the numerous suggestions for plans of treatment, and who could not profit by reading a work that will help them to replace by an intelligent therapeusis the haphazard administration of laxatives that is in general all that it is thought need be done for cases of constipation.

A SYSTEM OF MEDICINE. By Many Writers. Edited by Thomas Clifford Allbutt, M. A., M. D., LL. D., F. R. C. P., F. R. S., F. L. S., F. S. A., Regius Professor of Physic in the University of Cambridge; etc. Volume III. New York: The Macmillan Company. 1897. [Price, $5.00].

The third volume of this "System" is devoted to infectious diseases and to toxicology, and under the former heading there is the classification, in some respects unique in a work on general medicine, of diseases of uncertain bacteriology as distinguished from those whose specific germ is recognized. Of course the class of uncertain bacteriology is by far the larger, but there is every reason to hope that the day is not far distant when the proportions will be reversed. The volume then takes up the various forms of poisoning by ptomaines, mushrooms, etc., and closes with a section on intestinal parasites.

The work is essentially British, and as the possessions of Great Britain include every habitable quarter of the globe, this book finds contributors from British provinces all over the world, men who have come into direct contact with many diseases little known in this country except by name. Among these are the peculiar fevers of India, elephantiasis Arabum, beriberi, epidemic dropsy, verruga, frambœsia, the sleeping sickness, etc. One of the particular advantages of the work for American readers is that it has original observations upon these out of the way affections, which American writers have to deal with at long distance, often without ever having seen a case of the disease described.

MISCELLANY.

Fallacies as to Birth Rate Statistics.—The *New York Sun* says: The latest compilation of birth rate figures shows the rate in Nevada to be 16.30 per 1000, so that its population would die out completely in less than 100 years. Maine follows with a birth rate of 17.99 per 1,000, which gives its population about a century longer to exist. New Hampshire is third with 18 per 1,000, Vermont fourth with 18, and California fifth with 19 per 1,000, or nearly 12 per cent. less than the rate in France. This fact the alarmist statistician finds to be most striking, in view of the favorable climate, ample area and diversity of interests in the state. Following California is Connecticut, which has a birth rate of 21.3 per 1,000. Massachusetts has 21.5. Rhode Island has 22.5, a somewhat higher rate than the French, but still insufficient to prevent the extinction of the population within two or three centuries. Wyoming, with its 21.8, comes between Massachusetts and Rhode Island, while Oregon has a rate of 22.5. The conclusion drawn from these statistics is that within a period varying from 60 to 200 years, according to circumstances, the population of New England and the Pacific Coast will be replaced. This gives a good chance for the alarmist to arise and bemoan the condition of the Gaelic and Anglo-Saxon peoples, but the total extinction of these races in any given locality is not to be expected, the statisticians to the contrary notwithstanding. A low birth rate is not a mark of decadence or degeneracy anywhere; it is a mark of the disparity between the sexes in the population of any state or country. Statisticians make usually the mistake of estimating the growth of population not by the actual number of births, but by the relation which the number of these births bear to the total population. It is from this that they get their elusive "birth rate," and a little examination of the facts on which their last alarming bulletin is based will show this conclusively. In Nevada, by the last Federal census, the number of males in the state was 30,000; the number of females was 16,000. There was nearly twice as many males as females, but the statisticians, taking no regard of this disparity, based their estimates on the number of births to the total population, and thus arrive at the conclusion that the population of this state, as of other states on the Pacific, was dying out. In Oregon, by the last census taken by Federal authority, there were 180,000 males and 130,000 females, and in this state, for the same reason as in Nevada, the birth rate appears to be small. California is another state which the statisticians aver will at the present rate soon become depopulated. Theoretically, so to speak, it may; actually the population has increased from 380,000 in 1860 to 560,000 in 1870; 865,000 in 1880 and 1,210,000 in 1890—quite a rapid increase for a state which, according to the statisticians, is becoming depopulated. The reason of their error is the same in California as in Oregon and Nevada. By the last census the number of male residents of that state was 700,000 and of female residents 500,000.

For a similar reason, the New England states on the Atlantic seaboard have a low birth rate. The only difference is that in these states the disparity is on the other side of the column; there is an excess of female residents. In Rhode Island, for instance, by the last Federal census, there were 10,000 more female than male inhabitants in a state the total male population of which was 158,000. In New Hampshire the excess was 3,000, in Connecticut it was 7,000 and in Massachusetts it was 64,000. There is no danger of the depopulation of any American state. In some rural localities, it is true, population has fallen off, due to emigration to more fertile and productive regions, but if there be any pessimist about who is expecting the depopulation of any American state "within a period varying from 60 to 200 years," he may better abandoned his fears.

It is said that oil of eucalyptus, frequently applied with a camel's hair pencil over the surface of chilblains, relieves pain and soon cures them.

THE OCTOBER MAGAZINES.

The Atlantic.—For forty years *The Atlantic Monthly* has had but one mission, "to hold literature above all other human interests and to suffer no confusion of its ideals." Its first number contained no article that would not be called literature to day, and this is true of its last number. Without, perhaps, a single exception the best American writers have contributed to its pages, and in them may be found the history of American literature for the past forty years. The high ideal of its editor and publisher was realized in the first number, and few, if any, subsequent numbers have been better; and very few, if any, have been below the magazine's high standard. *The Atlantic* has never failed to be interesting, even to the ordinary reader whose taste has not been wholly perverted. Its table of contents for the current month demonstrates this fact, regardless of the perfect setting each subject receives. Here are some of the titles: Two Principles in American Fiction; The French Mastery of Style; Twenty-Years' Progress in Equatorial Africa; Latest Discoveries Touching the History of the Universe; Peculiarities of American Municipal Problems; Chicago Since the World's Fair; etc.

Harpers.—Of the illustrated magazines *Harper's Monthly* alone does not seem to be satisfied with fine and costly engravings. It alone puts the text of every article above its illustrations. Its October issue illustrates this point. Though rich in illustrations, it is full of things worth writing and reading. Captain Mahan writes brilliantly and authoritatively of "The Strategic Features of the Gulf of Mexico and the Caribbean Sea," showing the importance of Cuba to the United States, as a basis of naval operations. W. A. Crane tells of "The Future of Railroad Investments," a subject that is only second in this country to the future of investments in farm lands. Henry Smith Williams presented a very valuable article on "The Century's Progress in Chemistry." Besides other articles of this character, the number is rich in stories, short and continued, from the best writers, and the departments are full of such good things as this magazine has so long presented its readers.

The Cosmopolitan.—This magazine is easily the leader among the low priced magazines, and its table of contents for October will not suffer by comparison with that of any other magazine. Popular magazine literature has few stronger names than Grant Allen, John B. McPherson, Boyeson, Julian Hawthorne, Edgar Fawcettt, and Hurat Halstead; and certainly such articles as the following would be gladly received by any publisher: "Modern College Education;" "The Battlefield of Gettysburg;" "A Glacier Excursion in Norway;" "England in India;" "A Romantic Wrong Doer;" "The Marquis de Lafayette and President Monroe."

Lippincott.—One wonders how the editor of *Lippincott* manages to obtain so many good short stories, especially as this is a day when the demand for short stories far exceeds the supply. But *Lippincott* never seems to fail its readers who have come to appreciate very highly indeed its complete stories.

We note with pleasure the real advance the magazine has made in its entire table of contents, for rarely does a number appear which does not have one or more really notable articles. The October issue is not an exception.

The Living Age.—In this age of cheap printing and sharp competition, there must be some good reason why the *Living Age* has no rival. It seems to me this reason is to be found in the high standard of selections, a most difficult art that the editors of this weekly magazine has now maintained for nearly two generations. Giving, as it does, the cream of all foreign periodicals, it is nothing short of indispensable to every reader who likes good things, who wants to read good things, wherever found. The amount of matter it gives in a year makes it by far the cheapest of all the magazines. Its new price is $6.00 a year, while its size has been materially increased. New subscribers receive it free to the end of the current year.

NOTES.

We are in receipt of a little booklet published by Micajah & Co., Warren, Pa., entitled "Hints on the Treatment of Diseases of Women." This book takes up the different diseases peculiar to women and discusses each in a concise and practical manner. Much valuable material is contained therein which will be found of great assistance to the doctor. Write for a copy.

Taka-Diastase is now marketed in three forms in powder, in ¼-, ½-and 1-ounce vials; capsules, 2½ grains each, in bottles of 25, 100 and 500; and liquid taka-diastase, 8-ounce bottles only, 2 grains of the ferment to each fluid-drachm. In a recent circular Messrs. Parke, Davis & Company state: "We have introduced Liquid Taka-Diastase to meet the demands of those who object to both powders and capsules. In order to satisfy such patients, we know of several instances where solutions have been prepared extemporaneously, but with medicaments of vehicles with which Taka-Diastase is incompatible. Of course, failure in such instances was unjustly attributed to Taka-Diastase. Liquid Taka-Diastase will in future, however, most satisfactorily take care of all such cases. "Under no circumstances should Taka-Diastase be massed. It should be administered either in powders, in capsules, or the liquid form, and during or immediately after meals." If not already familiar with Taka-Diastase, write the manufacturers at once for monographs, reports of cases, reprints of articles, etc. Taka-Diastase is certainly *the* remedy in amylaceous dyspepsia.

Dr. I. A. Partridge, Warren, Pa.: I use Eucalyptol (Sander & Sons') in an atomizer, combined with liquid alboline (a petroleum preparation), with excellent results in nasal and bronchial catarrh. I think highly of this preparation.

Dr. W. S. Nobbitt, Almy, Tenn.: I used "Sander & Sons' Eucalyptol" as a preventative on my own person when la grippe was epidemic from January to April, 1890. I escaped when most physicians were prostrated. I find it efficient in breaking up colds in their incipient stage. I used Eucalyptol in six minim doses every four hours in a severe case of remittent fever after the fever had been brought to normal with twenty grain doses of quinine. I suspended the Eucalyptoi in syr. rhei aromot. The effect was excellent. The weak condition of the patienr was relieved and convalescence, tardy before, at once established.

Dr. Theo. W. Peers, of Topeka, Kans., says: I desire to report two cases in which I used papine with very gratifying results. The first case was that of a man suffering with a nonoperable case of epithelioma of the left side of the face. He had been operated on by a surgeon here, but on recurrence of the disease went to a "cancer doctor" who used a paste which "burnt" out a large amount of tissue, and started up a very rapid growth of the tumor. When he came into my hands, in October, 1895, the disease was so extensive that to make him comfortable was all I could hope for. Morphine, cocaine and codein were tried, but with such distressing after-effects that they had to be abandoned. I then began using papine, and two to four doses a day of a teaspoonful each kept him comfortable, with absolutely no unpleasant after-effects and with no increase in the amount given per day. The rapidity of the growth was decreased so that he lived until June, 1896, whereas, when I first saw him, I did not think he could live three months. The other case was one of probable tubercular peritonitis. I used it for six months with no after-effects, and always with relief to the patient. I know of no other anodyne that could be used for so long a time without unpleasant after-effects and without increasing the dose.—*Gaillard's Medical Journal,* Sept., 1897.

Physicians make a mistake in not specifically prescribing peculiar diets for patients suffering with ailments which are only amenable to treatment by regulation of the food. Doctors are prone to carelessness in this matter and often give orders which are only properly carried out by one who knows the component parts of each article of the patient's food. Flours which can be prepared by the household cook for the food of the dietetic and dyspeptic are now put on the market by Farwell & Rhines, the millers of Watertown, N. Y. Their "Diebetic Four" and "Dyspepsia Flour" are prepared, as their names show, with special reference to these conditions and merit the attention of physicians. The palatability and value of these and of their Barley Cyrstals can best be determined by a trial for which the manufacturers will supply the material on request.—*Clinical Recorder.*

Neurosine contains no morphine, chloral or opium, although it is the most powerful neurotic attainable. It is the standard remedy for the treatment of all forms of nervous disturbances. It is anoydyne and hypnotic, and the most efficient and trustworthy agent for the relief of hysteria, epilepsy, neurasthenia, mania, chorea, uterine congestion, neuralgia, migraine, delirium tremens, asthma, spermatorrhœa and all convulsive and reflex neuroses; the remedy par excellence in delirium and restlessness of fevers.

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—— —— M. D.

Sept. 2nd, 1897.

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LECTURES AND ADDRESSES.

AN ADDRESS

Delivered at the Opening Exercises of the College of Medicine and Surgery of the University of Minnesota, September 27th, 1897.

By Chas. Lyman Greene, M. D.,

Clinical Professor of Medicine and Physical Diagnosis.

St. Paul.

Mr. Dean, Ladies and Gentlemen:

Not realizing the formal nature of this initial lecture hour, I have prepared a somewhat homely and prosaic talk, which will, I fear, fall far short of the elaborate address which would be more appropriate to the occasion.

What I have to say is, nevertheless, not unimportant to you, whether as students or practitioners, and I shall make no further apology for its general character.

In behalf of the officers and teachers of the Department of Medicine I extend to you, one and all, a most hearty welcome to our school. Some of you have already spent busy years within its walls, while others are as yet uninitiated.

Those of us who have been here longer than any of you, and have watched the steady growth onward and upward of this great University, now the brightest gem in Minnesota's crown, believe we may not only welcome you, but may also congratulate you upon your choice of schools. Though young, the Medical Department of this University can with reason claim a place among the very best schools of this country. She aims to raise the standard of medical education and to seek and to utilize when found every wise measure of self improvement. Her requirements are, and always have been, those of the highest grade of medical schools, and she has never sacrificed her duty to mere expediency.

Our late and greatly lamented Dean, Perry H. Millard, made the advancement of this school and of medical education in general, the great aim and end of his useful life, and was one of the most earnest and effective workers along these lines that this country has ever produced. His Medical Practice Bill for the State of Minnesota, and his great activity and prominence in the organization and the work of the American College Association, have not only given him a claim to the grateful recognition of the profession, but have served to give this Medical Department a high place in the esteem of American teachers of medicine. His worthy successor will take no backward step, and under his guidance the need of extended training made necessary by the immense growth of medical science will be met by gradually increased preliminary requirements, and an extended and carefully graded course of study.

The day when untrained men sat through their short first term learning how to learn, and graduated in their second, both, perhaps, included, in one calendar year, has, happily for humanity passed away, and we can only wonder that the old system of oratorical, declamatory and dogmatic teaching turned out such good men as were those who in years past have carried the standard of American medicine to the highest peaks. For such men the college course was but a skeleton, upon which subsequent work and hard study in the light of a strong intellect and a keen perception laid the flesh and blood and fair outline of their medical attainments. The medical student today has an immense advantage over his predecessor of fifty years ago, and after his more leisurely flight through the lecture room, laboratory and hospital, alights fully armed upon the field of practice.

You may rest assured that nothing essential will be lacking in your training, whether theoretical or practical, and that it needs only proper effort, and earnest and well directed application upon your part. to make you at your graduation well grounded, broad minded men and women, fit to represent our school in that profession which divides with theology the honor of being the most unselfish and noble pursuit open to mankind.

To those just commencing the study of medicine I would say: Be earnest and purposeful in your work, make it from the start your one interest. Let your house be built upon the solid rock of well chosen and firmly fixed facts; you will find your hours long and your teachers exacting, yet always helpful and interested. Try and drink not only at the fountain of their knowledge, but take to yourselves some of that enthusism which so often makes them satisfied to sacrifice pecuniary advantage to the pursuit and the propagation of plain knowledge.

To the laboratory teachers I would especially commend you. There are no men, I believe, so happy as those who are working in pure science. Their ideals are high, and their aims lofty and unselfish. To their laborious and painstaking work we owe the greater part of all the progress made by medicine and surgery during the past two decades.

Study the successful man. Whenever you find a man who has accomplished much in his work, and who is continually adding his mite to the world's store of knowledge, you will find in him certain characteristic traits. He is honest with men and *facts*, tolerant of criticism, if it be honest and straight forward, simple and direct in speech, and possesses an unfailing industry and an acute appreciation of the value of order and system.

Bacon has said that truth comes more readily out of error than out of confusion; and Huxley has added the dictum that next to being right, it is best to be clearly and definitely wrong, because one may dash blindly hither and thither between right and wrong, without hope of escape or rescue, while he who is clearly and definitely wrong, must inevitably, in good time, be brought face to face with indisputable proof of error.

It is encouraging to know that any man of reasonably good parts may by the properly directed use of such faculties be certain of making a name in his profession, even though he lack what Tyndall has described as the "divine power of distilling from facts their essences. Above all things be honest. Nothing is more necessary to a physician than absolute, fearless, unflinching adherence to truth. And in no line of work is it harder to practice this receipt.

To those of you whom another year will launch into active professional life, I have something to say. You have reached that stage in your work where both the beauties and the complexity of practice will become more apparent. To the training and drill of the mind there will be added in large degree that harmonious working of hand and eye, that nice balancing of facts, and weighing of evidence, that expert application of therapeutic knowledge and resource which makes the fulness of your career. I trust your foundation is well laid. Build, therefore a strong and symmetrical superstructure. Note carefully the difference between the teaching which has gone before, and that which is to come. You will find that the books are not infallible guides, that divergence from the type is common and that your clinician is treating the patient rather than the disease. Do not be surprised to find the apparent certainty of diagnosis of the lecture room replaced by caution and conservatism in the hospital wards. The greatest clinical teachers are the least prone to make rapid, positive and infallible diagnoses, for with growth of knowledge walks a conservatism born of due appreciation of variation and possibility. The clinican who is prone to make snap diagnoses and never sees but one side of his cases is a dangerous and ill trained man.

Do not seek the rare diseases and the more dashing work of the year to the exclusion of the common but more important ailments and the apparent drudgery which brings light into dark places in practice. Begin to cultivate independence of thought, that rational and proper skepticism which seeks the truth regardless of dogma or the voice of authority.

Whenever it is possible, the graduate should pass from the school to a hospital and thereby secure in a few months a training which is the medical equivalent of years of outside practice. Such a training not only gives a fine opportunity for the study of a wide range of diseases, but the duties of the interne are such as to develop in him a readiness and facility invaluable in the emergencies of actual practice.

Not the least valuable of the varied opportunities presented by hospital service is that of observing and profiting by the mistakes of others. You will find that no diagnostician can invariably stand indorsed by autopsy, and I know of no influence so chastening nor of any remedy so potent for the cure or amelioration of a bad case of conceit, as is the post mortem which teaches us all to be modest ourselves, and to think charitably of the mistakes of others.

Some of you will I trust be fortunate enough to extend your studies and amplify your observation by study abroad. Such are fortunate indeed, for the effect of travel is to broaden the mind and extend our knowledge of human nature and of human institutions; moreover, no one can observe the work of a large number of men without adding greatly to his own resources, and to his own efficiency. A little thing here and another there, novel and valuable, may well repay us even for the observation of work otherwise commonplace and mediocre, while mere contact with some of our great teachers is an education in itself. But after all is done, and your travels over, I trust that you will return better Americans than ever, and feel as I do, that the best American physicians and surgeons need not fear comparison with those of any country of the globe, for they are neither hide bound nor fad fast, are thoroughly up to date, fearing nothing merely because it is new, but discarding what is good for what is still better, and while the average here is not yet what it should be, nevertheless by nature, training and skill, the American physicians and surgeons represent in my opinion the highest development and the best type of the medical man.

Before closing I must speak of the work which is awaiting you when you open an office, and commence the practical application of your medical education, for it is well to think of these matters during the days of your apprenticeship. You have, after graduation, to face entirely new conditions, and must perforce fight your own battles, for in many of your difficulties you will find no help in anything taught in the schools. Keep your mind wide open, be allopaths neither in name nor in practice. No "pathy" can be tolerated by the true physician, who seeks and uses whatever is good and useful from whatever source it be derived. The profession of medicine can rest upon no dogma, but must be catholic in its scope, embracing all that is good and useful. The ridiculous term allopath given us by our enemies during a period of active controversy should be promptly disavowed. You are physicians, you are healers of men.

You are presumably well equipped, medically, to practice medicine, but must first find patients upon whom to operate, must learn how to hold and control them, and must meet great demands upon your physical endurance, your patience and your tact. You must experience and successfully overcome many temptations peculiar to your profession, must preserve unsullied its noble traditions, and last, but not least, must cultivate and maintain a spirit of kindness, helpfulness and professional courtesy in your relations with your fellow practitioners.

It has frequently been said, that the first year in practice is one of the most valuable educational periods in a physician's career, and this is probably almost as true today as ever before. It is nevertheless a trying time, especially for those who are low in funds, and have to sit day after day, and see their little stock of money fade away and nothing come to take its place. Many abandon practice under this strain, and a few of the weaker resort to questionable methods for the sake of the certain revenue to be obtained. I cannot too earnestly warn you, even at this early period, against entertaining any proposition or taking any step, however trivial, which is either unfair or unprofessional. I trust it is unnecessary to warn you against that crime so common in all classes of society at the present day, which contemplates the taking of immature human life. There is but one term to apply to such procedures and that is *murder*. This is a temptation held out to every young medical man or woman, in the first years of practice, but to the credit of our profession be it said, that it is a temptation seldom successful.

One thing which usually characterizes the young doctor is his belief in signs; large signs brilliantly lettered and conspicuously placed are thought to attract patients. This is a mistake save in exceptional instances. Patients are both the source and the stream of practice, and they come, not because your name is prominently displayed, but because they have received no relief from others, or have heard you favorably mentioned. Most young physicians get their first cases amongst the chronic sufferers, who try every new doctor, and are by them introduced to the more satisfactory family work, which is to make their practice.

It would require more time and space than the limits of this address would allow, if I should attempt to set before you the varied and complicated relation of the physician to his patient. I will mention briefly only a few matters of importance.

Keep your office hours, even if it seems useless.

Respond promptly to any call, and do not be afraid to show your interest in the case in hand.

Collect your bills regularly, but be careful to bear lightly upon those in moderate circumstances, and do not be afraid of charity work. Make the financial side of your business the lesser part and keep the scientific and humanitarian aspect to the front.

I need not caution you to avoid anything which savors of advertising. The profession has wisely set the seal of its disapproval upon anything savoring of commercial methods, which lead to undue and undignified competition for business, place the poor and young physician at an insuperable disadvantage as against his richer and better established competitor, and put the profession of medicine on a level with the bargain counter.

I regret that we cannot effectively reach a certain group of medical advertisers, who indorse everything for the sake of the circulation of their name, or those who are applying for trade marks and patents upon drugs and appliances for medical and surgical use, despite the fact that one of the most valid claims of the medical profession to the respect and esteem of the people lies in the fact that any drug or instrument devised to relieve pain or cure disease, indirectly or directly, has always been freely given to the world by its discoverer, whenever he was himself a physician.

Whenever you see a drug or instrument which is patented or copyrighted, reject it, if you can replace it by any other which is open and free.

Remember the illustrious examples of unselfishness and self sacrifice afforded by the annals of your profession, and do not degrade it or yourselves by making it a mere commercial venture. I cannot see how a man who practises medicine solely for gain is as much to be respected as the scavenger who does less repulsive work without any hypocritical professions.

Such duties as fall to our lot are robbed of their repulsive features, not by the dollar or two of compensation, but by the knowledge that we are doing good and relieving human suffering.

Cultivate and maintain a proper self-respect and dignity. A professional man is, by his education, entitled to a high place in the esteem of his community, and he should in every way live up to his title.

Be positive in your opinions when they are properly grounded and rule your patients with a kind but firm hand. There is no greater mistake than to suppose that vacillation, however well meant, will favorable impress a sick person. The sick, in ninty-nine cases out of a hundred, like to be ruled by their physician and to feel that he has positive and well conceived ideas, and will not recede from them except for cause.

I will close with a reference to your relations with other physicians. You have heard of the code of ethics, a set of rules outlining a physician's duties, obligations and relations to his patients, his professional brethren and himself. There is probably a need for such a code, and you will find it to be binding upon the members of nearly every medical society in America, whether county, state or national.

There is no doubt, however, that for the honorable self-respecting physician, no code is necessary save that old law "Do unto others as ye would that they should do unto you."

Most of you will meet as competitors, and will yourselves become country practitioners. The country practitioner represents what is best in medicine, and brings to his work, if he be a successful man, energy, knowledge of human nature and of his own people in particular, ripe experience in difficult work, readiness in emergency, and a genius for accomplishing much with little, which makes him a man to be respected.

Sometimes he is not kindly disposed to his newly fledged competitor, but more often he is kind and helpful, and you will do well to cultivate and maintain friendly relations.

You will always of course speak kindly of all brother physicians and see the good rather than the bad in all men. Make this your rule and keep it inviolate. A man will never succeed by abusing or belittling his competitor, an act which is generally rightly attributed to jealously or some other ignoble trait. If any misunderstanding arises between another physician and yourself go directly to the man himself, and make a manly and dignified attempt to adjust the matter. When you meet your brother physician in consultation, do not feel that you must of necessity suggest a change in treatment or seek to glorify yourself in the eyes of his family at his expense. Your position is in such cases a delicate and responsible one. Make any suggestion modestly and quietly, performing your whole duty to the patient and supporting and indorsing wherever you can the man by whose courtesy you are called.

Do not make the common mistake of being afraid of consultation. Unwillingness to have counsel will almost invariably be misconstrued by the family and weaken rather than strengthen you, and it is generally better and wiser for the physician to anticipate their request. But you may properly object to the unnecessary multiplication of attending physicians, so frequently seen in important cases. One or two physicians will handle a case effectively, but each one added reduces the patient's expectation of life.

You cannot too often recall and pass in review those heroes of medicine who have sacrificed pleasure, health or even life itself, in the course of duty. The laboratory, the hospital, the daily round of practice all have their perils.

A few germs of anthrax, a septic wound, a malignant case of diphtheria, or the slower infection of tuberculosis, these are but a few of the dangers which threaten the physician. Dangers which have sent thousands of useful, unselfish, self-sacrificing men to an early grave, for the physician is almost daily called upon to risk his life to save others. There is no contagion so virulent as to keep him from his charge. Wherever bullets fly or pestilence rages, there you will find the members of our great brotherhood, regardless of self, fearlessly and tenderly ministering to suffering humanity.

But a few years ago one of your own teachers, a bright and shining light in our professon, placed his lips to the tube which he had introduced into the trachea of a child sick with diphtheria, and made a brave but fruitless effort to remove by direct suction the virulent matter which obstructed it, hoping thus to save the little life which was passing away before his eyes, thus deliberately risking his valuable life to save that of a little child. The Victoria Cross never rewarded a braver deed.

Gentlemen, you are going to find much that is difficult and disagreeable in your work, both as students and practitioners, but there is full compensation in the trust and loving confidence which will be your portion.

The family physician is loved, honored and trusted by his old patients to an extent equalled only in the priesthood. Moral and physical ills are laid bare before him, he is a confidante in matters of the most extreme delicacy, he is counsellor and guide.

He sees the birth of the new life amid pain and suffering. He sees the young and ardent life pass amid a mental agony more terrible to witness than the physical. He sees the full and complete life slip gently back to its Creator, and happily he may be the means of smoothing the inevitable path in one and of lifting the dark veil in another.

He is not merely a passive instrument of good, but is the active spirit whose courage and hopefulness uplifts the suffering, brings back hope and banishes despair.

I trust, gentlemen, that one and all you will strive to fulfil in your chosen field the high ideal which we cherish, and I wish for you all, both in your work as students and in your subsequent career, the highest and truest success.

The bicycle is so much used by physicians that it may almost be regarded as a professional instrument, and medical men will no doubt be interested in the suggestion made by a correspondent of the *British Medical Journal*, who sends the following description of "an easy way to locate a small puncture in the tyre of a bicycle": Instead of putting the inner tube of a pneumatic tyre under water to find out the puncture, all that is necessary is to do as follows: Take out the inner tube in the usual way from the outer cover, and, having made the hand wet with clean water, pass it over the tube, which is fairly inflated—it need not be tightly so. When you thus wet the punctured part there will be a distinct sensation felt by the hand when passing over it of a bubbling nature. The hand must be very wet, and no difficulty will be experienced. I have found this so useful that I desire all my professional brethren who use a bicycle to know this simple method.

ORIGINAL ARTICLES.

DIAGNOSIS.*

By H. B. Sweetser, M. D.,
Minneapolis.

Diagnosis, in its widest sense, i. e., the full appreciation of the pathological conditions present and their underlying causation, must manifestly form the basis for any rational system of therapeutics. It is self-evident that the more thoroughly we understand the departure from the normal, the more scientific will be our efforts at readjustment. Accuracy of diagnosis, therefore, should always be our first aim in the consideration of every individual case, and clinical research and laboratory experimentation in the last few years have given to general medicine many methods by which such accuracy may be more nearly attained. The importance which has come to be attached to these latter-day methods by those who are seeking to practice scientific medicine, may be gathered from the following significant assertion made by Dr. Da Costa, of Philadelphia, in an address, a few weeks ago, to the Association of American Physicians, namely: "The time is, indeed, at hand in which, without the ready access to a laboratory manned by experts in all these lines, or the association with a trained laboratory assistant, no physician can do his patient, himself or his science justice." Now, this may be true for complex chemical, histological and bacteriological investigation, for which we shall always have to depend upon the skilled worker in the laboratory, but for a great many practical purposes, with a little technical knowledge and the expenditure of a little time and labor, we can do a good deal of investigating on our own hook which now is done by the specialist.

My object, therefore, in presenting this subject to the Society is not, by any means, to bring forward anything new, but merely as a plea to general practitioners that we should utilize more often in our daily work such of these methods as are not too complex, but which we are prone to think are too laborious and too consuming of valuable time.

It is not a sufficient measure of excuse for negligence to plead that so many cases come to us in the course of the year that are really not very sick, and that recover in a few days under any therapeutics, nor in the added fact that so many are unwilling to pay an extra fee for extra care given to them; for not infrequently one of these indefinite cases appears later in some one else's practice as a case of cancer, or nephritis, or tuberculosis, adding neither to our reputation nor to our ease of conscience. Such misfortunes do not prove that the other man knows more, but only that he has the genius of industry more largely developed than we. The only difference, it seems to me, between a general practitioner and the specialist in internal medicine, is that he consumes an hour in investigation where we give five minutes; he listens to the heart where we feel the pulse; he examines the bare abdomen by palpation and percussion where we ask if there is pain in the stomach; he interrogates the urine chemically and microscopically where we pick up the vessel and say it looks all right; he inserts a stomach tube and analyzes the gastric secretion where we content ourselves by looking at the tongue; he takes a drop of blood where we merely note the color of the skin; and, most important of all, he takes ten dollars to our one. Such negligence on our part is unfair to ourselves and absolutely unnecessary.

As a matter of routine, in every case we should at least note the temperature, the rate of pulse and respiration, the arterial tension, the condition of the vessel walls, the pupillary reaction, the appearance and sensibility of the skin; we should explore the chest, palpate and percuss the abdomen more or less thoroughly, and examine the urine for its specific gravity, reaction and presence or absence of albumen and sugar. What we find in this preliminary examination will determine and direct our further investigation; or, even if we go no further than this, we shall have the satisfaction of knowing that we have avoided the danger of committing any very grave error of omission.

Among the various methods of diagnosis given to us by modern research and which may be utilized in our routine work because of their simplicity, possibly the most important is the use of the aniline stains in conjunction with microscopy. There is no question in my mind that the use of the microscope will in the future become as common and as indispensable to the general practitioner as is the use of the clinical thermometer today; that as methods become simplified its field of practical utility will expand; and that it will lead in a great many cases to positiveness in diagnosis where now of necessity we must be satisfied with theory and speculation. Its great value may be exemplified by considering its use in the diagnosis of three very common diseases, tuberculosis of the lungs, gonorrhœa and carcinoma of the uterus.

(1) It is a well acknowledged fact that our only hope of favorably influencing the course of tuberculosis resides in the application of treatment during the first stage; it is therefore of prime importance that an early diagnosis be made. It is claimed, and possibly with truth, that such

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diagnosis may be made by the exhibition of tuberculin, but there can be no doubt that as at present constituted such tuberculin injections are against the best interests of the patient and therefore scarcely justifiable. In the vast majority of cases a diagnosis with no risk may be made by examination of stained specimens of sputum, such examination requiring a minimum of skill and at the outside an hour of time.

(2) Carcinoma of the uterus, also, we can hope only to influence in its incipiency and when localized, and a positive diagnosis thus early can only be attained with the aid of the microscope.

(3) The importance of diagnosis in gonorrhœa lies in its contagiousness. Of course in the early, violent stage the difficulty is slight and accuracy not absolutely essential, but later when the question of continued infection arises and we are called upon to protect others than the patient, the discovery of the presence or absence of the gonococcus makes it easy to decide as to our course and advice, and such discovery is possible only through microscopy. In all of these cases the general practitioner may with ease make the diagnosis.

Another field which modern research has opened and which may, with not too much labor, be utilized by the general practitioner for purposes of definite diagnosis, is a more critical examination of the blood. The hæmaglobinometer gives us the proportion of hæmaglobin; the hæmatokrit estimates readily the number of red and white blood cells, and slides, stained and unstained, show morphological and other changes and the presence or absence of microörganisms. Very much of value as regards both diagnosis and prognosis may be learned from a moderately close study of the changes from the normal blood constituents.

Thus in the various blood diseases we may differentiate simple from pernicious anæmia, chlorosis and the different forms of leukæmia. It has been found that inflammatory changes, especially with suppuration and also malignant diseases give rise to leucocytosis of pathological degree, and thus in obscure cases a simple blood count may be made the differential test between such diseases as typhoid and inflammatory fevers as appendicitis, meningitis, sepsis, etc., or between carcinomas and ulcer of the stomach. The finding of the plasmodium in the blood will also decide as between malaria and typhoid or tubercular processes. This study of the blood is well worthy the attention of the general practitioner.

Still another aid to diagnosis which we, as general practitioners, too lightly pass by are the various means which modern physiological and clinical research have evolved of investigating with precision diseases of the stomach and the resultant disorders of digestion. Interference with the functions of digestion as a result of gastric disease is of very common occurrence, and is clinically of extreme importance because of its reaction upon the general health. From the standpoint of prognosis and treatment it makes a vast difference whether we are dealing with a simple catarrhal gastritis, or an ulcer of the stomach, or a carcinoma, or a skenosis, either benign or malignant. It is for the purpose of making such differentation that modern clinicians have devised procedures for ascertaining the character of the stomach secretion, the rapidity of absorption from its mucous surface, its power of propulsion and its capacity. Giving results which are sufficiently accurate for ordinary clinical purposes, these procedures may be brought within the capacity of all of us, both in simplicity and in brevity of execution. Any patient will swallow a test breakfast; with a little tact he may be made to swallow a stomach tube, and thus the material be obtained for chemical analysis.

(a) A simple chemical reaction will determine the acidity or alkalinity of such fluid, and, if acid, with sufficient accuracy, whether the acid is hydrochloric or lactic.

(b) The absorptive power may be guaged by the ingestion of a capsule of potassium iodide, and subsequent testing of the saliva with starch paper.

(c) Stenosis and dilatation may frequently be made out by simple palpation and percussion, noting especially the wave of peristalsis, or, if not, by distending artificially with two grains of sodium bicarbonate and one and one-half grains of tartaric acid given separately.

(d) The propulsive power may be estimated by the administration of salol with subsequent examination of the urine for salicyluric acid.

(e) With the data thus obtained we are frequently able to state with positiveness the pathological conditions present.

Finally, I think that under certain conditions our examination of urine should be much fuller than is ordinarily made, for the reason that from such examination we may frequently draw deductions of both diagnostic and prognostic value, such as would be impossible by any other means.

(a) In the first place, in particular cases, the amount passed in 24 hours should be noted, as this, with the specific gravity, will give us roughly the amount of solids eliminated in the same time.

(b) The quantitative estimation of urea is of considerable importance, as this substance is the index of tissue metabolism, and any great diminution in the amount eliminated should serve as a warning of impending danger.

Dr. Abbott, of Minneapolis, in a paper read before the Minnesota Academy of Medicine and published in the Northwestern Lancet, described an easy method for estimating the amount of urea, in which he avoids the use of the objectionable bromine.

(c) The discovery of increased uric acid and urates in particular cases will give us valuable information both as regards diagnosis and treatment.

(d) In suspected cases of typhoid fever, Ehrlich's diazo reaction, although not at all pathognomonic as at first supposed, yet is a negative differential test of fair value and should always be applied. In tubercular cases, if constantly present, it seems to indicate an early bad result, and may therefore enter into the prognostic estimation of individual cases.

(e) The test for indican also may throw considerable light on special cases, as its presence in increased amounts points to putrefactive changes and means usually disease either of the stomach or small intestines.

(f) The microscope of course is indispensable in the examination of urinary sediments, and its use should never be omitted. By it we discover the presence or absence of blood, pus, epithelium from the various parts of the urinary tract, the different forms of tube casts, microörganisms, tubercle bacilli and inorganic crystals. Its investigation often clears up the diagnosis and gives us an insight into the true pathological conditions present.

In the struggle for fuller knowledge of diseased conditions modern research has evolved innumerable methods which make for greater accuracy in diagnosis. For the elaboration of a great many of these skilled training and specialism are necessary, and they lie beyond the province of this paper, and the capacity of the author. My sole object in presenting this subject to the Society was to call particular attention to those means which we can all utilize with a minimum sacrifice of effort and time, but with immense benefit to ourselves and to our patients; to enter a plea to the general practitioner for more of the genius of industry; and to sound a note of warning that unless in some degree we keep abreast of the times we shall be sadly distanced in the race for success.

In conclusion I wish to emphasize the fact that we are just, neither to ourselves nor to our patients, if, in the presence of certain conditions, we do not avail ourselves of these modern aids to more accurate diagnosis; unfair to ourselves if we let cases go to others or to the specialist which we could easily diagnosticate and treat; and unfair to our patients if, through our negligence, the time slips by in which their diseases might be carried to a favorable termination.

HEREDITY—DIRECT INFECTION, PROPHYLAXIS AND CONTROL OF TUBERCULOSIS.*

BY C. H. HUNTER, M. D.

Minneapolis.

Most of us, whose clinical information is the only source of knowledge of tuberculosis are unaware how exact the information is since the introduction of experimental methods in its study. Inoculation, feeding and inhalation experiments upon all sorts of animals by many observers innumerable times have settled many questions formerly speculative. The essential cause of the masses of granulation tissue now and then coalescing, softening and occasionally healing, but more often leading to local destruction of tissue and the ultimate destruction of the organism is proven to be tubercular. Without this small, hardy, widespread and easily cultivated plant there is no tuberculosis. There may be diathesis, tendency or disease, but it is not the disease tuberculosis. It is moreover parasitic and not aprophytic, finding its soil, habitat and nutritive pabulum in the animal body, perishing speedily once it is cast out; reproduced by its kind once it gains entrance to another animal body.

The limits of this paper call for the consideration of its heredity, infectiveness and prophylaxis. Rigid definition would exclude heredity of tuberculosis, understanding by heredity "the tendency manifested by an organism to develop in the likeness of its progenitor." If born of tuberculous parents without the bacillus in its tissues, it may be a feeble organism, it is not tuberculosis. If born with the bacillus lodged in some of its tissues giving miliary or larger tubercles, as happens in the laboratory or perhaps oftener than we are aware in nature, it is the disease tuberculosis, but congenital and not hereditary. The original imperfection is not from the ovum nor from the spermatozoon. The bacillus has leaked through the placenta from the blood of the mother to that of the fœtus. This has been demonstrated in laboratory work.

The localization of the lesions in the fœtus as found now and then at post mortem examination of the human embryo of a tuberculous mother and oftener in the calf of a tubercular cow is different from that in the adult. In these fœtuses the oldest lesions are located in the liver where the bacilli lodge as they come from the placenta through the umbilical vessels. From these points they may be distributed through the body. Or where the lesions are not visible, still guinea pigs can be infected with the fœtal liver tissue. It is possible, according to some (Baumgarten and others), for a tuberculous father to infect his offspring without infecting the mother, by the bacillus escaping with the semen, reaching the ovum and developing with its development. This must be an occurrence of infinite infrequency. In fact, the comparative infrequency of a congenital tuberculosis, either from mother or father, is so apparent that it can practically be more profitably neglected for a closer scrutiny of the conditions under which the infant or the adult may become infected by the germ. These conditions, apart from the acquiring of the germ, seem to be the inheritance, not so much of a tendency, as of some peculiar chemical constitution of tissue that renders it good soil for the bacillus tuberculosis. Just as Nature transmits to the cat and the dog tissue much more refractory to this germ than she does to the guinea pig, for instance, or as the farmer finds one soil better adapted to the oat seed, another to wheat and still another to corn, so the physician finds the seed of tuberculosis growing in one body and barren in another. But this question is probably only a part of the far larger one of immunity in general and need not be farther discussed here.

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* Read before the Section of Medical Education, Jurisprudence and State Medicine of the Minnesota State Medical Society, June 16, 1897.

How then may the bacillus enter the body to grow if the soil is favorable and cause the disease tuberculosis? It is demonstrated experimentally in the laboratory and clinically in natural tuberculosis that there are three routes taken by the seed, viz: inoculation, inhalation and feeding. The incubation of inoculation is from two to four weeks, the dissemination and destructiveness depending upon the number and vigor of the seed as well as upon the refractiveness of the tissues invaded. The rule is for the point of entrance to be marked by a local lesion invariably inoculation, usually in the respiratory or digestive tract, as the ulcer on the tonsil in infection of the cervical glands of the pig by inhalation or the intestinal ulcer when the mesenteric glands are infected by feeding. It is important to remember that both these sets of glands have been found diseased in experiment without the respective mucous membrane showing ulceration. The inference is that the germ may penetrate the unbroken mucosa and first multiply in the nearest lying glands. In experiment all tissues have been inoculated.

Natural tuberculosis may begin by inoculation, but not often. We hear of wounds becoming tuberculous after contact with tuberculous matter. The butcher or the doctor may infect a finger, but we seldom or never see such cases in practice. Inoculation as a means of the spread of tuberculosis can be left out of count. Inhalation contributes most to the spread of tuberculosis. Feeding of tuberculous foods or dishes contaminated with tuberculous material lags not far behind. Especially in infancy is this true, for milk from a tuberculous cow is a prolific source of abdominal tuberculosis in infants, and this whether the udder is diseased or not (Ernst). But by far the largest number of cases of tuberculosis are tuberculosis pulmonum (consumption), and lungs are infected by breathing in bacilli from the undisinfected drainage of other diseased lungs. Not the breath of the consumptive is, however, infective, but the stuff he spits up containing the bacili. Through sputum the bacilli are distributed, not as in measles or scarlet fever, but in its own slow, tuberculous way.

Effective prophylaxis of tuberculosis waits on accurate knowledge as to the manner of life and dissemination of its seed. Like other weeds, it can probably be killed out by following it up. Such knowledge is forthcoming. The time is now ripe for an active propaganda among the people as to the true nature and contagiousness of consumption. The incentive of prophylaxis lies not in the abruptness of the disease, as in variola or bubonic plague, but in its extraordinary prevalence and deadliness. Such propaganda would have two points of departure, personal, through the medical attendant, public, through the health officers. It is our duty to caution those inheritors of a favorable soil as to selection of occupation, of climate, of habitation, and to avoid the company of the consumptive, much more not to marry one. Our advice to one already afflicted should be explicit and practical. It would be to inculcate habits of personal cleanliness, the despair of the race. Discharges from tuberculous wounds should be caught and burned; tuberculous stools should be washed with corrosive sublimate solution; the sputa should be caught and burned. One practical way would be to teach the use of the corrosive gauze roller instead of the handkerchief, floor, street or cuspidor. Done with tact and conscience many would take heed and become less dangerous to their fellows.

In a large way the public can protect itself through its health officials. First, by rigid inspection of foods, like meat, milk and dairies, now happily in vogue. Second, by house inspection, disinfection and reporting, so that a tenant can learn by inquiry at the health office as to the disease history of any given dwelling. Third, by compulsory reporting of cases that such measures as seem desirable may be taken by the community to protect itself against one of its members who has become dangerous. Fourth, by segregation in hospitals of those who have become particularly dangerous.

These are new problems. So once have been the rules regulating the other infectious diseases to which we have all accommodated ourselves. The logic of the situation demands action. Our profession, above all, should offer no petty or factious opposition to regulations calculated to lessen the spread of this slow but sure scourge. The duty of devising rules at once effective and equable to individual, profession and community alike devolves on our health officers. Unfortunately too many American communities have given over the health office as spoils to the political class, so that knowledge of his office or at least that part of it that pertains to the preservation of the public health is of secondary consideration.

A health officer or engineer who does not know whether he and his city fellows are drinking water or sewage could not fairly be expected to take an interest as to the milk the city's babies were getting or as to where consumptives should spit. Our salvation lies in the spread of knowledge, its effective application and in not voting the straight party ticket.

The separation of the tuberculous in the hospitals and their care at the public expense raises also large problems. It may be the next step in the socialistic doctrine of the many caring for the few for the good of the many. It may also be cheaper in the end, but who is to pay the bill? The support of the very rich and the very poor in this country, not to mention other more glorious paupers, has already become onerous. Perhaps with farther consideration some equally safe and less expensive way of doing could be devised.

It may, then, be considered established beyond cavil that tuberculosis is a contagious disease; that its seed may be destroyed and that its ravages and mortality are sufficiently terrible to make it the part of good sense and economy to devise means and apply them effectively to lessen its ravages as has been done for other infectious diseases. Shall our profession be leaders or querulous laggards in the spread of exact knowledge and its application? It is not worth while for the profession in Minnesota to take a pronounced attitude in urging every health officer of our state to devise and put in practice at once rules for the control of tuberculosis?

THE CONTROL OF HEMORRHAGE AS A FACTOR IN ANTISEPTIC SURGERY.*

By C. T. Allen, M. D.,

Minneapolis.

In local or general infection, with or without suppuration, two essential factors are practically always present, namely: A, Bacteria, B, Culture medium. Bacteria have been very carefully studied, and have been regarded as accountable for many of the ills of humanity since the revered genius Lister directed attention to the relation between infections and living organisms.

The wonderful advance in surgical as well as medical pathology, the lessened mortality in grave surgical operations, the decrease in the number of cases of the so-called infectious diseases as the result of quarantine, all emphasize the importance of the discovery and serve to immortalize the name of the grand old man. The devotion of surgeons towards limiting the amount of septic material which invaribly finds its way into wounds, whether intentional or accidental, has been highly praiseworthy; possibly some of the efforts in this direction are unnecessary, but until we possess knowledge of the exact requirements we are working on the safe side.

However much may be exercised in the technique of aseptic surgery, septic material surely finds access to the field of operations, not only from the hands of those concerned in the operation, but also from the air. Probably every wound would become the infection atrium of a general infection were it not for the natural bactericidal powers of the tissues, namely, phagocytosis, and the production of the physio-chemical alexins, as a result of the metabolism of cells battling against the invading organisms. Aseptic surgery as now practised so far limits the number of microörganisms admitted to operative wounds, that the tissues, even though possessing little immunity, are ordinarily enabled to accomplish their destruction.

The vast majority of operative wounds heal by first intention, or by second intention with so little pus production that it interferes very slightly with the process. These results are reached in most cases, by careful preliminary attention to the digestive system and the general emunctories of the body, followed by good operative technique, including that to which I shall call special attention, namely, the careful control of hemorrhage. Occasionally after the usual scrupulous attention to detail, a patient dies within 24 to 48 hours after the operation; another goes through less severe sepsis and recovers perhaps with some suppuration at the seat of operation. That something has been neglected is quite plain, but what is not always easy of explanation, as the cause likely varies in different cases. That the cause is sometimes a slight hemorrhage from a vessel which has escaped notice or from general oozing, thus affording a culture medium, I feel quite convinced; this conclusion was reached after witnessing many operations by different surgeons in London hospitals. Their methods from the standpoint of asepsis vary considerably from those used in this country, so far as I am informed, and yet their results are about the same. In some of the cases I marvelled at the results, having seen the methods adopted, and finally came to the conclusion that my notions as to the requirements might rather be brought into question.

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An explanation was sought by carefully observing all the phases of their work, eliminating the while my biased opinions. As a result, I am convinced that very much depends upon the condition in which the wound is left after the operation, with special reference to hemorrhage or serous collection.

If English surgeon means more than surgeon elsewhere it means that he is preëminently an anatomist, and surgery in England is founded upon a thorough anatomical knowledge. That a thorough anatomist can operate with the least possible injury to a part is pertinent, and little injury means less liability of overlooking a bleeding vessel, very much less oozing, and consequently less liability to sepsis.

The English surgeon cuts only what is necessary, tears as little as possible, and having finished the operation proper, closes the wound only after having cared for every bleeding point, checked oozing if possible, and if not, having provided suitable drainage. My reasons for believing that a blood clot or sero-sanguinolent material favors sepsis are:

A. After the inherent bactericidal powers are exhausted, it becomes a most excellent culture medium.

B. Separation of the surfaces of the wound is produced, healing is delayed, the patient's resisting powers lessened.

C. The removal has to be performed by cells which are most active in destroying germs, hence their destructive power is lessened.

D. Operations for inflammatory conditions which destroy the protection wall liberate germs which may become active under favorable conditions.

PRESENCE OF BLOOD CLOT.

Extra care should be exercised in peritoneal wounds, as the moist condition of the parts favors hemorrhage by preventing the formation of clots in the vessels. Probably more septic material can be cared for successfully by the peritoneum than by any other part of the human economy, for the reason that a greater number of phagocytes are quickly brought into action, and, too, the endothelial cells are thought to possess bactericidal power, nevertheless, we should not take any chances by leaving material to be absorbed and thus decrease the duties of these cells.

Acute peritoneal sepsis even to death may leave very little evidence behind, for the peritoneal fluid may be found normal to the extent of being sterile, while the omentum is teeming with virulent germs, yet appearing little changed to the naked eye. Microscopical or culture tests prove their presence. Another evidence in these acute cases is the enlargement of the anterior mediastinal lymph bodies. Deep seated abscesses as a result of trauma, wherever seated, injury to joints followed by suppuration, mixed infection of the tuberculous exudate—all it seems to me support my position.

In conclusion, allow me to suggest the importance of combining the anatomical knowledge, the care of hemorrhage and drainage of the English surgeon with the antiseptic precautions of the American and many Europeans. That the combination is used by many is undoubtedly true; that it should be used by all is quite as true. Having seen some of our Minnesota surgeons in trying and difficult surgical operations, I am convinced that their success depends quite as much upon their anatomical knowledge, care of hemorrhage and drainage as upon their clean hands.

Aseptic or antiseptic surgery rests upon a broader base than the germs of sepsis.

SERIOUS OCULAR COMPLICATIONS FOLLOWING LABOR.*

By H. McI. Morton, M. S., M. D.,

Ophthalmologist and Otologist to the St. Barnabas Hospital, Minneapolis.

I desire to report the two following cases to illustrate some of the possible serious complications which may follow upon labor:

Case I. Mrs. R. B. K., white; æt. 36.

On September 7, 1894, having symptoms of threatened abortion, the patient called in a physician— not a regular practitioner—who curetted the womb. Following upon this procedure appeared a septic endometitis and peritonitis. At this time Dr. S. W. Ranson, of Dodge Centre, was called to take charge of the case. On the 17th of September, Dr. Ranson noticed an injection of the left bulbar conjunctiva. This increased so rapidly that in a day or two the chemosis was very marked, and the lid swollen. The right eye became affected in the same manner on the 22nd. I saw the case with Dr. Ranson on the 25th, and found panophthalmitis in both eyes. The lids were swollen and indurated, the conjunctivæ were thrown into flat folds of a gelatinoid character, which protruded from the interpalpebral fissures; the corneæ were hazy and insensitive, and the eyeballs immobile; tension in the right eye + 3.=stony hardness, and in the left markedly increased.

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Any attempt to restore vision was of course hopeless. With the patient under chloroform I did a double iridectomy to relieve tension, as the pain was exceedingly severe. A pocket of pus was found in the lower left cul de sac. The swelling began to subside at once, and relief from the pain was obtained. Dr. Ranson's subsequent reports of the case showed a gradual subsidence of the inflammation, but no vision remained.

This was a case of metastatic ophthalmia, the septic matter from the pelvis being conveyed by the blood currents to the eye and orbit.

Case II. Mrs. C., æt, 30, was referred to me by Dr. C. H. Hunter, in September, 1891. As a result of a bad fall, she had had symptoms of threatened abortion and at the next menstrual period, some three weeks subsequent, (about Nov. 10, 1890), the flow was very profuse, attended with vomiting and a temperature of 105 degrees. A few days after this time a fœtus of about five weeks was removed. No ocular symptoms were noticed until the third day, when the patient discovered that she was unable to see distinctly, and during the night had complete amaurosis, being unable to distinguish a flame held in front of the eyes. The day following vision had almost completely returned. There was no ocular trouble subsequent to this.

As there was not a great amount of blood lost at the time of the abortion, and as the symptoms did not immediately succeed the accident, ten days elapsing, I am inclined to assign as a cause for the complete loss of vision either an hysterical condition or more probably a reflex irritation.

TRAUMATIC SPONDYLITIS.*

By Arthur J. Gillette, M. D.

St. Paul.

I use the term "trauma" as the conditions here reported followed immediately after an injury. The first case was seen with Dr. Reed of this city when he was stationed at Fort Snelling, Minn.

The injury was the result of a slight slip on the sidewalk and was suddenly followed by paraplegia, the area of anæsthesia extending up to almost the nipple line. He remained in this condition for five months, at which time I first saw him. I noticed a slight prominence in the upper dorsal and in the lumbar spine. This prominence would not have been considered due to caries, however, had it not been for the rigidity in this region, the radiating pains, paralysis, etc. He had a temperature range which was quite typical of tuberculosis. His pain was more extreme, however, than is usual in chronic diseases of the vertebræ, and while extension and immobilization relieved the pain somewhat, yet he did not receive the marked relief which is our experience in spondylitis.

All this time there was no evidence of lung disease; it developed later and ran a rapid course, but he never had a cough. The post mortem revealed a very interesting and striking condition. The entire vertebral column, at least from the upper dorsal to the sacrum, was soft and spongy and a knife would easily penetrate any of the bodies of the vertebræ, in fact the vertebræ could be crushed between the fingers. This was also the condition of the crest of the ilium and of the ribs and sternum, and there was almost complete destruction of the intervertebral disks. The spinal canal contained fluid of a coffee color, due to small hemorrhages. There was extensive disease of the lungs, tuberculous in character, enlarged liver and a markedly enlarged spleen. This was the extent of the post mortem as per agreement with the relatives as we were not allowed to remove any tissues.

Case second was a young man of about thirty-five years old, of perfect physical development. He was a fireman by occupation and was obliged to pass a physical examination before admission to the fire department. A few months before I saw him he severely sprained his back while lifting. He was unable to continue work, although there was no involvement of the cord for some time after the injury. When I saw him he was unable to walk, there was exaggerated knee reflex and marked ankle clonus; any sudden jar or quick movement caused pain in the sides, back and legs. There was a slight prominence in the lower dorsal spine and the muscles were rigid throughout the entire length of the spinal column. The pain was not confined to the region supplied by the nerves which originate from the supposed diseased area, but the entire body, neck, shoulders and sides were complained of with any movement.

I diagnosed Pott's disease and attempted to apply a plaster cast. While the patient was partially suspended he had an attack of syncope which was quite alarming. In fact I doubt if he ever fully recovered from the shock which was caused by attempting the application of the plaster cast, as he was afterwards a great deal weaker, the spine more tender and headaches much more severe.

I succeeded in getting a leather corset made which gave him considerable relief, yet not the relief I had promised. The paralysis continued until there was retention of urine and loss of control of the bowels. The head symptoms, pain, semiconsciousness, delirium, and the temperature varying from subnormal to 101° F. led me to diagnose basilar meningitis.

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* Read before the American Orthopædic Association, at Washington, D. C., May, 1897.

These symptoms continued for some weeks. One morning I was suddenly called, as he had a severe attack of coughing and choking. I found his respiration very much embarrassed and all of the physical signs of pleural effusion of the left chest, while quite remarkably the brain lesion had seemingly been relieved. He was too weak and exhausted to attempt the withdrawal of the fluid in the pleural cavity, and he shortly died.

I felt sure that this effusion into the pleural cavity had not existed before this sudden attack of dyspnœa and coughing, for if it had existed it must have been very slight as there had been no previous symptoms and I had repeatedly examined the chest. I could only account for this sudden effusion and the relief of the brain and cord symptoms (that is pain and delirium for it did not affect the paralysis), by an abscess rupturing which had caused pressure on the cord and had emptied itself into the pleural cavity.

He soon died and the suggestion of a post mortem was met with remonstrances, but examination of the spinal column was allowed. We found the canal filled with sero-purulent fluid, the spinal cord intact and its membrane softened. In the upper dorsal region was found a sinus passing through the left intervertebral foramen, and a probe passed through here communicated with the left pleural cavity, which cavity contained fluid of the same macroscopic appearance as that found in the spinal canal. Upon removing some of the vertebræ there was periostitis, having the appearance of the periostitis albuminosa described by Ollier. There was no pus, but a serous, synovia like fluid with evidences of inflammation in and around the bone. Upon denuding the vertebræ there was a carious condition of not only the anterior but the posterior segment as well. This condition of the periosteum and of the bones extended through all the vertebræ examined, which consisted of the dorsal and lumbar.

Case third was a robust young man following the occupation of a woodsman. While doing some heavy lifting he sprained his back, and while it was not so severe that he was obliged to cease work at once, yet it so interfered with his occupation that he returned home.

He consulted his family physician, who finding that counter irritation, rest and the ordinary treatment for sprained back did not relieve him, referred him to me.

At this time there was seemingly a slight prominence of the first two lumbar vertebræ, but he complained of pain somewhat above this region as well. He was referred back to the family physician with the usual instructions advised in such cases, as it was supposed to be a case of caries of the vertebræ.

The patient continued to grow worse; especially was the pain increased in the upper dorsal and lower cervical vertebræ, radiating to the shoulders and arms.

His temperature seldom went above normal, though at times it was as high as 101° F., but this was thought to be due to an acute nephritis which disappeared in a short time. He also had some œdema of the lower extremity; there were never however any symptoms of spinal cord involvement.

Considering the length of time he was sick and the great pain he suffered most of the time, the excellent condition of his general nutrition was surprising.

When I saw him some little time before death I thought I could detect a well marked prominence of the three upper dorsal vertebræ; the pain in the shoulders, arms and neck and its increase upon any movement of the upper extiemity or head, led me to diagnose an area of caries of the vertebræ.

This condition existed for a number of months. When death occurred we succeeded in getting permission for a post mortem.

The vertebral column and its contents was removed from the last cervical vertebra to the sacrum and a portion of each lung and the kidneys and spleen were given to a pathologist for examination. The following is his report.

"The following organs were submitted:

"The right kidney, a portion of the liver, the spleen and a small piece taken from the apex of each lung and a section of the spinal column. The result of the examination was as follows:

"The right kidney presented on section a very narrow cortex which was pale and streaked with injected blood vessels contrasting distinctly with the darker pyramids. On stripping the capsule portions of the kidney were torn off with it giving a roughened appearance to the surface of the kidney.

"The liver was soft, friable and showed macroscopic evidence of fatty degeneration. Small portions of the lungs (taken from the apices) showed nothing of importance (no evidence of tuberculosis).

"The spleen was as large as the liver ordinarily should be (weight, three pounds and four ounces). On the convex surface there was a band of white tissue, seemingly fibrous, extending from the notch across the end of the spleen. On section underneath the capsule this band was found to consist of a dense, yellowish, cheesy looking substance about one half an inch thick. The surface of the spleen is very dark red and mottled. On section the spleen pulp was very dark red, the vessels much injected with here and there small spots of hemorrhage. The bright red color of the blood as it oozed from the severed vessels on the cut surface was particularly striking in contrast with the dark hemorrhagic spots and reddish gray substance of the spleen pulp.

The spinal column (the lumbar and seven lower dorsal submitted). The vertebræ showed the spongy portion everywhere involved to a greater or less extent, presenting in a lesser degree areas of normal bone structure while in the bodies of several vertebræ the spongy bone was reduced to a dark red pulpy mass. On sawing through the bodies of several vertebræ a process was found to be more advanced in certain sections of the spinal column than in others. Thus the bodies of the lower lumbar vertebræ we reduced to a dark pulpy mass with only a network of bony structure left in the spongy portion. Above this there were two vertebræ in which the process was much less advanced. Still further above this a group was found very much involved and no vertebræ of those examined entirely escaped.

"The integrity of the spinal column was maintained by the thin shell of compact bone which surrounded the pulpy mass. Even the intervertebral discs were involved and were soft and swollen. It was observed that in instances in which the body of the vertebra was but little involved, the processes were often reduced to a dark red pulpy mass enclosed in a shell of compact bone.

"Microscopical examination. The kidney showed marked evidence of degeneration of the renal epithelium with areas composed of lymphoid cells infiltrating the interglandular structure. The liver showed some degeneration of liver cells, they having become granular and lost their contours. There were here and there areas of infiltration of lymphoid cells and a marked proliferation of connective tissue in and about the walls of the blood vessels.

"Sections of spleen showed a homogeneous structure consisting of cells not to be distinguished from ordinary cells constituting the spleen pulp with here and there marked dilatation of blood vessels and occasional hemorrhages. There was little or no apparent increase in the connective tissue constituting the trabeculæ. The yellowish band seen on the surface of the spleen was found to consist of a hemogeneous caseous looking mass which did not take the staining.

"Section through the bodies of the vertebræ showed the dark portion to consist of a bloody mass in which were numerous nucleated red blood corpuscles in all stages of development. Cells with eosinophile granules, and here and there large mononuclear cells in the process of division, mitosis being quite evident, were to be seen."

The medical woman is gaining ground in England. Six lady students took the degree of B. M. at the Newcastle College of Medicine.

MOVABLE KIDNEY.*

By D. B. Pritchard, M. D.

Winona, Minn.

I wish today to invite your attention, for a few minutes, to the question of movable kidney. It is a subject about which much has been written within the last few years. Many of those who treat of the subject, however, seem to take extreme views. You have on the one hand the ultra-conservative, who sees but very few cases and does not believe in doing anything for them, because he fears harm may result and that they are not the cause of trouble in any event. On the other hand is the man who finds movable kidney in every second or third woman who consults him. If it is not troubling her, he thinks it ought to, and immediately proceeds to anchor it. You will notice that I speak of woman in connection with this trouble. While it no doubt does occur in men, it is comparatively rare, the proportion being about seven to one. It is claimed by those of large experience that one in four of the cases consulting gynæcologists has movable kidney. The right is much more often involved than the left. In only one case have I found the left movable, and that was in a patient with a marked range of movement on the right side.

Pregnancy, particularly in women who have borne their children at short intervals, tight lacing, injuries and anything that is productive of much emaciation, have all been ascribed as causes. Then, again, it is claimed by some observers that movable kidney is only one manifestation of a general sagging of the abdominal contents. This may be so in some instances, but it has not been demonstrated to my satisfaction that it is true in any but exceptional cases. Judging from my own experience, I am inclined to think that loss of fat and frequent pregnancies are the main factors in the etiology. To illustrate: a young woman, previously healthy, suffered from a severe pneumonia followed a few months later by a cerebral meningitis; she became greatly emaciated and developed movable kidney of both sides, that of the right being very marked. She frequently has severe attacks of renal colic, and suffers a good deal of pain in the right hypochondriac region most of the time. All of my cases but one have been pregnant one or more times, all are under forty years of age, and are thin, neurasthenic subjects. It is reasonable to suppose that marked emaciation will allow of greater freedom of motion of the kidney in its fatty capsule because of the absorption of fat, thus tending to bring about a pathological condition.

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*Read before the Southern Minnesota Medical Society, August 5, 1897.

The symptoms seem to bear no relation to the degree of mobility. Some cases suffer greatly with a very slight range of motion, while others in which you can move the kidney half way over the belly complain of no trouble. One of its most serious consequences is hydronephrosis. A hard working woman, aged thirty-four, who has had numerous children at very short intervals, consulted me in May, 1895, because she *had* had a large tumor in her right side. It attained such a size that her neighbors supposed her pregnant. It used to become perceptibly smaller at times and then enlarge again. The day before I saw her she fell down some steps and suffered intense pain in her right side. She was obliged to take to her bed for some hours, and then discovered that the tumor had disappeared. She also noted that she passed a large quantity of clear urine. It was the disappearance and not the presence of the tumor that alarmed her. Upon examination a diagnosis of movable kidney with a resulting hydronephrosis was made. About eighteen months before this I had found that she had a movable kidney, but it was not then, otherwise diseased.

The diagnosis is not always an easy matter. In some cases it is so plain that it can hardly be mistaken. When you have a thin, nervous woman consult you, complaining of headache, pain in the region of the right kidney shooting down into the pelvis, dysmenorrhœa, irritable bladder, an inability to lie on the left side, loss of appetite, gaseous distention and constipation, look out for movable kidney. I have been better able to palpate them when the patient is on her back with her thighs drawn up, thus relaxing the abdominal muscles, than in any other position. The kidney normally ascends and descends during respiration, and we must have some standard by which we can differentiate the physiological from the pathological. It is held by some that if the kidney fails to ascend during expiration it is abnormal, and this seems to me a fair test. By placing one hand behind in the lumbar region and the other in front, you should be able to palpate a movable kidney about as readily as a uterus or a diseased Fallopian tube. If we examine carefully, taking the history fully into consideration, about the only thing that we can confound with a kidney is a distended gall bladder; but even then the shape, consistency and range of movement should make the diagnosis clear.

Out of seventeen cases that have come under my observation, but four have seemed to me to need surgical treatment. Some of the cases that have had no symptoms that could be referred to the kidney have had the widest range of motion. When there is much pain or a commencing hydronephrosis, it is our duty to do something to relieve the patient. The treatment falls under three heads: rest, mechanical support and nephrorrhaphy. With rest I have had but little experience, but believe that in recent cases, with slight mobility, and particularly following great loss of fat, it would be worth a trial. Mechanical support, with me, has been a delusion and a snare. The very cases that are most in need of relief have been just those that were unable to stand the pressure. I have had but three cases of nephrorrhaphy.

Case I. was a woman twenty-eight years old, much emaciated, with a history of several pregnancies very close together. She presented nearly all of the usual train of symptoms, both local and reflex. There was no hydronephrosis. She was operated upon in May, 1896. Her recovery was uninterrupted. The pain has disappeared, she has gained much in weight, and sleeps and eats well. I saw her last a year after her operation, and she told me that she was about as well as she ever was in her life.

Case II. was a woman aged twenty-six, the mother of three children, the eldest being four years old. She was neurasthenic, emaciated and complained of much pain in the right hypochondriac region and pelvis. The right kidney was movable, the perineum and os torn, and the uterus subinvoluted. The lacerations were repaired and the uterus curetted. After several weeks stay in the hospital she returned home but little better. As she did not improve in spite of rest in bed, tonics and feeding, she again entered the hospital. Nephrorrhaphy was done, and while her return to health was not magical she gained steadily, so much so that in a few months she herself and her husband returned to South Dakota, to take up farming that they had abandoned on account of her poor health.

Case III. is that of hydronephrosis that I have already mentioned. She was operated upon Nov. 21, 1896. She, too, has shown decided improvement. She has gained in weight and general health. The hydronephrosis has disappeared and the pain is gone. Instead of the invalid that used to be unable to attend to the most of her household duties, she is this summer not only attending to her home, but assisting her husband in his gardens, he being a market gardener, in addition to delivering the fruit and vegetables to their customers in the city.

As I have already stated, I do not believe that every movable kidney needs to be anchored, but I do believe that when the symptoms seem to be so directly referable to that condition as in these cases that I have briefly described to you, the operation of nephrorrhaphy is justifiable and should be done.

Evidence is accumulating of the discovery of a bacillus that causes goitre. This germ is one that belongs to the soil, but is probably carried in drinking water since in places like Holland and Venice where only rain water is drunk, goitre is unknown.

REPORT OF CASES OF EXTRAGENITAL CHANCRE.

By Burnside Foster, M. D.

St. Paul.

The following cases are reported, without comment, as a contribution to the literature of extragenital syphilis, the importance of which has been so markedly emphasized and so much more generally recognized since the publication of Buckley's valuable monograph, "Syphilis Insontium." I have notes of several other similar cases, but as there existed in each of them a reasonable doubt as to the diagnosis, I have thought it best to report only those which were fully substantiated.

CHANCRE OF LIP.

Miss K., age 19. First consulted me August 7, 1890. For about three weeks has been troubled with an obstinate sore on the inside of the lower lip. Examination showed the lower lip to be swollen to about twice its normal size, and at about the centre of the right half the mucous membrane was the seat of a lesion about the size of a dime, very slightly excavated at its centre and surrounded by a considerable area of redness. The mass was indurated, thick and slightly painful on pressure. There was not much secretion from the ulcerated surface but it bled quite easily. The cervical glands were enlarged on both sides. The patient denied any sexual intercourse, but admitted that she had been very free with her lips with various men, and had permitted almost every other liberty with her person, so that there had been ample opportunity for infection. About three weeks later a general eruption followed by numerous mucous patches and later by alopecia established the diagnosis.

CHANCRE OF RIGHT FOREFINGER.

Dr. E. consulted me first August 15, 1893, for an obstinate ulcerating condition of the right forefinger. About two weeks previously he had first noticed a sore point at the base of the nail which soon became red and ulcerated and caused the entire finger to swell. There had been very little discharge, but a tough grey slough had formed in the bottom of the sore and it was quite painful. On examination the end of the finger was swollen to almost twice its natural size; there was a deep excavated lesion about the size of a dime, filled with necrotic tissue and surrounded by a red induration. The nail was lifted from its bed and there were unhealthy looking granulations beneath it. There was distinct enlargement of the epitrochlear and axillary glands, which were not painful. The patient complained of headache and said he had been chilly with slight fever for the last two nights. I told him that the sore was, in my opinion, a chancre and directed him to use a hot bichloride wash three times daily, and dress the sore with a calomel and iodoform ointment. He repudiated the diagnosis but adopted the treatment. About five weeks later he wrote me that the sore was nearly healed but that his hair was falling out, and that he was covered with an eruption which he did not describe. I afterwards learned that he went to Chicago where the diagnosis of syphilis was confirmed and a course of treatment instituted.

CHANCRE OF TONGUE.

Mrs. R. G., age 32, an attractive widow of good social position in a neighboring town, was referred to me by her family physician, March 20, 1894, for an obstinate ulceration of the under side of the tongue near the tip. She was engaged to be married at the time to a man whom I had seen some months before in consultation, and who had numerous patches in his mouth. The lesion was undoubtedly a chancre and her physician afterwards wrote me that she soon developed a typical syphilis with severe constitutional symptoms.

CHANCRE OF RIGHT FOREFINGER.

Dr. S., first seen June 15, 1895. About eight weeks ago first noticed a soreness about the nail of finger on outer side. After treating it for some time with antiseptic washes and mild ointments without any effect, it was vigorously cauterized with fuming nitric acid. This treatment only made it worse, and for a time there was a deep ulceration which involved most of the end of the finger. The specific nature of the sore was not suspected until about ten days previous to his first consultation with me, when he broke out with a general pustular eruption, accompanied by headache, pain in bones and slight fever. On examination the chancre is still unhealed and, besides the eruption, there was general adenopathy, especially of axillary glands, and several mucous patches in mouth, with a dusky red condition of the mucous membrane of the tonsils and pharynx. Prompt specific treatment was instituted and the patient has been under observation for about two years and is now apparently well. In this case the source of infection could not be ascertained, as the patient had been doing a large obstetric and gynæcological practice.

CHANCRE OF LEFT NIPPLE.

Miss K. R., age 24, a prostitute, consulted me January 4, 1896, for a sore nipple. She said she had frequently allowed men with whom she consorted to kiss the nipple. About six weeks previously a man had bitten it, not severely, but so that for a day or two afterwards it was a little sore. About two weeks before I saw her the nipple had become quite sore and inflamed. On examination the base of the nipple and the skin adjoining is the seat of an indurated ulceration about the size of a chestnut, surrounded by a considerable area of redness; no other symptoms. She was given a bichloride wash and an emollient ointment and told to report in a week. January 20 she returned with a general papular syphiloderm, enlarged axillary and cervical glands, headache, pain in limbs and slight fever. She was at once placed upon specific treatment and is still under occasional observation, although she has been very irregular in taking her medicine, and still has numerous patches and sore throat.

CHANCRE OF RIGHT FOREFINGER.

Dr. K., first seen April 20, 1897. On January 10, 1897, he attended a woman in confinement, whose husband was known to have syphilis. February 28 noticed a rather painful sore in right forefinger. At first this appeared to be an infected scratch and little attention was paid to it, although it refused to heal. Early in April the patient began to feel ill and feverish, and about two weeks previous to consulting me noticed a general macular eruption over body. On examination the remains of the original sore appeared as a somewhat diffused redness of the finger, slightly tender but not ulcerated. There was a general papular syphilide with marked enlargement of the axillary and cervical glands. The patient has since developed sores in mouth and throat, which readily yielded to specific treatment. When last seen he was doing well, and he is at present on a vigorous course of mercury.

CHANCRE OF GUM.

Miss A. B., age 18. Seen in consultation May 28, 1897. In December, 1896, patient had considerable trouble with one of the right upper molar teeth and had considerable work done by a dentist. The tooth was filled with soft filling and the trouble subsided. About four weeks latter the gum became sore and swollen and there developed an ulceration which would not heal. Early in February, about six weeks after the sore first appeared, the patient broke out with a general eruption, accompanied by headache and some fever, which was supposed to be measles, although there was no coryza or eye symptoms. This was followed by alopecia and sores in the mouth and on the tongue. The eruption gradually faded and disappeared in about a month. When seen in May the patient was pretty well covered with a pustular eruption, on the body and scalp, which had existed for a couple of weeks. There was general adenopathy, the glands in the neck being especially prominent. A few mucous patches existed in the mouth and around the genitals. There was redness and a marked induration of the gum at the site of the original sore. It seemed probably that the dentist's instrument introduced the infection, but there was of course the possibility that it had come from some other contact.

CHANCRE OF TONSIL.

Miss E., age 27. First seen July 28, 1897. This patient was referred to me by Dr. J. H. Stewart, who had been treating her for iritis, of which he suspected the specific origin. Some six weeks ago she had a severe "ulcerated sore throat." On examination there is now a deep ulceration of the right tonsil, which is much swollen, and there is a general diffuse redness of the throat. The glands on the right side of the neck are considerably enlarged and there exists on the body and face a general papular eruption, which is somewhat scaly. The patient has improved very markedly under mercury and is still under treatment. The method of infection could not be traced.

THE ALLEGED HEREDITY OF CONSUMPTION.—There is no doctrine more firmly impressed on the mind of the average director of a life assurance company than the hereditary transmission of consumption, yet the discovery of the tubercle bacillus and the confirmation of the infectious nature of consumption has thrown quite a new light on some of the questions connected with the transmission of this disease. The old statistics, which simply stated the number of consumptive persons who came of a consumptive parentage, will not now suffice to convince any thoughtful physician that the disease is transmitted by inheritance. There can be little doubt that in many of the so-called cases of transmitted phthisis the patient acquired the disease by contagion, his powers of resistance to the bacillus being enfeebled by the same conditions of environment as led to his father or mother being affected. In order, therefore, to prove that consumption is inherited, it will be necessary to show that the children of consumptive parents when removed from the influence of the parental environment succumb to the disease to a greater extent than do the general population. Dr. T. O. Edwards, of Hartford, Conn., Assistant Medical Director of the National Life Association, has treated this question with much force and lucidity in a paper, entitled, "Facts not Theories, in regard to Consumption from an Insurance Standpoint." He says emphatically: "It is more important to inquire strictly into the environment and personal condition of the applicant than it is to reject or accept wholly on the now believed false theory of heredity and predisposition, remembering that there is no tangible evidence of heredity, and that predisposition is environment and proximity to the risks of personal infection."

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THE IMPORTANCE OF MEASLES.

It is one of the results of the advance of medical and not less of sanitary science that with a decreasing death rate from certain diseases and classes of diseases the relative importance of other affections is augmented. There were few so farseeing as to predict this result which a little reflection shows to be invitable; indeed it may be stated a little more strongly and said that to reduce the death rate from one disease will cause an actual as well as a relative increase in the death rate from other diseases that are chiefly fatal at the same time of life as the one that has been brought under control. For example: abdominal surgery is now saving thousands of lives annually, particularly of women, among whom not many years ago the common ovarian cyst caused a considerable mortality, the tumor being almost invariably fatal if left to itself or operated upon radically before the days of antisepsis. Under modern methods of operation the death rate from ovarian cyst is practically nil, and this one operation alone causes a yearly saving of many thousand women, chiefly about middle age. Other life saving operations of recent introduction might also be mentioned, but on the other hand it must be admitted that the fatality of cancer has been little lessened by any surgical advances. The result of this total removal of one cause of death and lowering of the fatality of others is to give cancer, whose victims are mostly past middle life, a decidedly greater relative importance in the death returns and to furnish a partial answer to the oft-repeated question, "Why is it that cancer is nowadays so common and we hear of it so much oftener than we did?"

Another illustration of the same point is to be found in the relation between measles and the other common contageous diseases, small pox, scarlet fever and diphtheria. A study of the health records of England for the last forty five years, as given by the Health Officer of Stoke Newington in a paper before the Sanitary Institute last April, showed that the death rate from small pox had fallen from 22 per 100,000 population to 2 per 100,000 during the period from 1850 to 1895, and the death rate from scarlet fever during the same period had fallen from 88 to 18 during the same time. On the other hand the death rate from measles had remained very constantly at 41 per 100,000 of population during this whole time. For diphtheria the figures are less significant, the death rate from this disease having been 11 per 100,000 in 1859, and 25 in 1895. In the case of diphtheria however it must be remembered that the disease was comparatively little recognized in the fifties and it was not until a later period that its ravages, began to be seriously felt. The reason for the lack of improvement in the death rate of measles while the mortality of other contagious diseases has decreased is not far to seek. All of the advancements of sanitary science, the knowledge of the nature of contagion and improvements in methods of quarantine have done little or nothing to prevent the spread of measles. The causes of this are obvious and lie chiefly in the fact that measles is highly contagious before its presence is suspected, and the further fact that on account of its supposed mild nature it is impossible to arouse public sentiment to favor its quarantine, and without the support of public opinion, successful quarantine is well nigh impossible.

The popular idea that measles is a mild disease and one of little consequence is very unfortunate, and the medical profession should set about correcting this error and should teach the folly of making light of a disease which in the year 1890 was responsible for 9,256 deaths in the United States according to the returns of the very imperfect census of that year. Yet it is common to know of cases where parents have deliberately exposed their children to the contagion of measles with the avowed object of letting them take the disease and "having it over," making the mistake of supposing that it is necessary for everyone to have measles sooner or later, and the further mistake of thinking that the older the person attacked the severer the disease. As a consequence of this popular contempt for measles it is not uncommon to see children going to school or riding on street cars or frequenting other public places while in the stage of invasion of measles, but with the signs of the disease so marked that teachers not infrequently make the diagnosis and send a child home with the statement that it is suffering with measles.

The experience of places that have tried to quarantine measles has not for the most part been encouraging. None the less, boards of health and those interested in sanitary science should persist in their efforts to bring the disease under control by having cases properly notified and placarded, the other children of the family restrained, and in cases of threatened epidemic by closing the schools. A substantial fine imposed upon the householder who neglects to notify the authorities of any case occurring in the house, would help to get control in those cases where as often happens the doctor is not called in. Above all the members of the medical profession can do much missionary work by teaching that measles is not a disease to be despised, and by opening people's eyes to the fact that it is responsible for more deaths than small pox and in many places counts more victims annually than that much dreaded disease scarlet fever.

A Pasteur Institute is about to be established in India, a rajah having contributed the site.

BOOK NOTICES.

Lectures on Malarial Fevers. By William Sidney Thayer, M. D., Associate Professor of Medicine in the Johns Hopkins University. New York: D. Appleton and Company. 1897.

Although the Northwest in general and Minnesota in particular is fortunate enough to be entirely free from indigenous malarial fever, the subject is none the less an interesting one to all medical men, not only in a general way but because the imported fever is seen everywhere no matter how exempt the neighborhood may be from the native disease. The term "malaria" is used so commonly and so loosely that it becomes quite as important a matter to teach what is not as what is true malaria. Probably few are aware how much this term is abused and are unprepared for Professor Thayer's statement that the statistics of New York, Brooklyn and Baltimore for the six years ending with 1890 showed more deaths in each city from malarial fever than from typhoid. It is needless to say that these death returns were undoubtedly grossly incorrect and that in truth the number of deaths from typhoid greatly exceeded the deaths from true malarial fever. As bearing upon this the author quotes the records for Johns Hopkins Hospital for seven years, showing 48 deaths from typhoid against 3 deaths from malarial fever, a proportion much more likely to be correct from the known fact that true malarial fever is not of very fatal tendency. What the returns of the cities named covered under the cloak "malaria" is beyond guessing, but quite likely crime as well as ignorance was hidden there.

Dr. Thayer makes a thorough and scientific study of his subject beginning with some interesting historical matter showing how modern views of malaria were led up to. He accepts the "plasmodium malariæ" of Laveran as the cause of the disease, shows how it may be found and recognized and furnishes the accepted explanation of the peculiar periodicity of the disease. The lectures are clear, direct and forcible, and in their printed form the use of italics shows the reader the passages upon which particular emphasis was laid in their delivery.

The Essentials of Obstetrics. By Charles Jewitt, A. M., M. D., Professor of Obstetrics and Pædiatrics in the Long Island College Hospital and Obstetrician to the Hospital. Illustrated. New York and Phila: Lea Brothers & Co. 1897. [Price, $2.25].

This book is intended for the use of the student as an aid in fixing in the mind the main points of the subject of obstetrics without having to pick them out of the voluminous treatises which cover the whole ground. It differs considerably however from most of its fellows in approaching quite nearly to an epitome of the subject instead of taking merely the form of questions and answers like most of the "Essentials." Indeed, it contains all that the practitioner would ordinarily care to read about obstetrics unless he were looking up some special subject perhaps in writing a paper.

A Practical Treatise on Sexual Disorders of the Male and Female. By Robert W. Taylor, A. M., M. D., Clinical Professor of Venereal Diseases at the College of Physicians and Surgeons, New York; etc. Illustrated. New York and Phila: Lea Brothers & Co. 1897.

Venereal disease used to mean chiefly gonorrhœa, syphilis and the chancroid, but modern study has added to these a knowledge of a great variety of affections which cause more or less interference with the procreative powers without being the results of contagion. It is this latter class of cases which Dr. Taylor has made a subject of study in the present volume, which deals chiefly with the causes of impotence in man since women suffer but little in this way except in the rather rare event of new growths attacking the genitals.

Psychical impotence is well known to all physicians and furnishes a large share of the cases of this affection, but not as well known are the many other varities found in this book due to local lesions and inflammations described by the author in surprising number out of an experience that can hardly be matched on this side of the water at least.

MISCELLANY.

The British Medical Journal in an article on coca wine and its dangers says: There is no doubt that the steadily increasing consumption of coca wine is a subject which calls for comment and investigation. We find that coca wine and other medicated wines are largely sold to people who are considered, and consider themselves, to be total abstainers. It is not uncommon to hear the mother of a family say: "I never allow my girls to touch stimulants of any kind, but I give them each a glass of coca wine at eleven in the morning, and again at bedtime." The mania for taking narcotic stimulants is wide-spread, and is a distinct source of danger to the national health. It is difficult to say at present what steps should be taken, but it is obvious that at no distant date some restriction will have to be placed on the sale of coca wine and its congeners.

NOTES.

SUBACUTE RHEUMATISM OF THE AGED.

"With the majority of people one of the signs that the grand climacteric has been reached and passed or at least is very close at hand is the presence of vague, rheumatic pains of a transitory character, but present somewhere almost continually. Sometimes (we might say in the majority of cases) the sensation is scarcely severe enough to be called a pain but rather a soreness of the muscles, which is intensified on the approach of cold weather or preceding a change of weather and especially before long wet spells. In the morning on awakening the patient will feel sore all over, or possibly some joint will be affected, usually one which in years gone by has been the seat of some injury, such as a fracture, a sprain or a severe wrench. Medical authors have not considered this form of rheumatism of sufficient importance to give it a name and most of those so affected accept it as one of the penalties of advancing years or as something for which medication is useless. Tongaline and Lithia tablets, two at night upon retiring and two on arising, washed down with copious draughts of hot water, will in the course of a short time remove the cause and subdue the trouble."

"If it's a pill made by William R. Warner & Co. it's Soluble." There are only a few words in the above sentence, yet they are words which will impress all who read them. The theme is not a new one. The name "Warner" has long had the word solubility" intimately associated with it. While we congratulate Messrs. Wm. R. Warner & Co. upon the perfect preparations bearing their name, we cannot but state we do not see why they should not be perfect. Forty-one years in business constitutes a period during which a progressive house should be able to give to the profession perfect preparations. The pills made thirty years ago and exhibited at the American Medical Convention, in Philadelphia, proved to be as perfect and soluble as the day they were made. The following is suggestive that Messrs. Wm. R. Warner & Co. have been very successful.

Liberty, Ohio, June 9, 1897.

Messrs. Wm. R. Warner & Co., Philadelphia.

Gentlemen:—Last winter I unearthed a small vial of your Aloin Granules that by chance had been stowed away for *twelve years.* Having always used your Aloin Granules in my practice I of course used these, and, as far as I could determine, *they were as efficient as the day they were made.* I tried them on myself several times with results as good as could be wished for. I have kept a few as a curiosity. They are O. K.

Yours truly, J. H. Adair.

LACTOPHENIN PERFECTLY SAFE.

In his exhaustive chapter on Tuberculosis, in Wilson's American Text-Book of Applied Therapeutics, Professor James T. Whittaker, of Cincinnati, compares the antipyretics at various stages of treatment, and always speaks most favorably of lactophenin. Thus, in mentioning methods for lowering the temperature (p. 376), he says that salol is safer than acetanilid, antipyrin, or phenacetin, "but as it liberates carbonic acid in the intestine, it should not be given in any case of stasis of the kidney;" and then he adds: "Lactophenin, in the same dosage (5 to 7 grains), is efficacious and free from danger." To quiet pain (p. 384), "sometimes due to a toxic neuralgia," salol is safer than either phenacetin or antipyrin (the latter, in large doses, depressing the heart), while "lactophenin is a perfectly safe drug in the same dose (5 grains every two hours)." This view is in accord with the judgment of the many reporters, that lactophenin is the safest of all the newer antipyretics.

NON-DESCRIPTIVE.

The practitioner frequently comes in contact with women whose ailment is non-descriptive, they are depressed, have forebodings, and feel that their entire system is out of order, nerves completely unstrung, pains, aches and a general feeling of lassitute and debility. The physician being unable to perceived any positive symptoms indicating other than a normal condition, although he recognizes something must be done to satisfy his patient until he is able to locate the cause. In such non-descriptive cases dioviburnia combined with neurosine will usually, after a week or ten days, give entire relief.

℞ Neurosine....℥ii Dioviburnia....℥iv
M. Sig. Tablespoonful in wineglass of water every three hours.

There can be no detrimental after-effects, as neither of these products contains opium or other deleterious drugs.

FERRATIN IN ANÆMIC DYSPEPSIAS.

Dr. Elbridge G. Cutler, of Boston, in an excellent paper, entitled "General Remarks on Gastric Dyspepsia," read before the Massachusetts Medical Society, June 8, 1897, and published in the *Boston Medical and Surgical Journal*, Sept. 9, 1897, advises the use of Ferratin to increase the hæmoglobin. In examining the patient, "the relation or dependence of dyspeptic conditions on other local diseases or general disturbances" should be found. The lungs and the urine should be examined; the hæmoglobin should be examined weekly, and the patient weighed; and if diet, control of daily life, etc., do not increase the hæmoglobin, then Ferratin should be used to aid the other measures.

The usefulness of good hypophosphites in pulmonary and strumous affections is generally agreed upon by the profession. We commend to the notice of our readers the advertisement. "Robicson's Hypophosphites" also "Robinson's Hypophosphites with Wild Cherry Bark" (this is a new combination and will be found very valuable) are elegant and uniformly active preparations; the presence in them of quinine, strychnine, iron, etc., adding highly to their tonic value.

Dr. M. T. Pollard, Gadsden, Ala.: I use "Sander & Sons' Eucalyptol" in affections of the nose and throat with perfect success in the form of a spray, using oil vaseline as a vehicle. In nasal catarrh it is the remedy par excellence to all others, and in no instance have I seen it fail. It is equally efficient in throat diseases, whether acute or chronic. I am highly impressed with it.

WANTED—TO FORM A PARTNERSHIP.

A physician and surgeon, now located in a small northwestern city, desires to form a partnership with a physician in active practice in St. Paul or Minneapolis. He has had twenty years experience, possesses as good an office outfit as can be found in the northwest, and give satisfactory references.

Address "A," Care of NORTHWESTERN LANCET.

A PURE WATER.

Endorsed by Physicians.

The Indian Medical Springs water is a positive preventive for typhoid fever, if used exclusively. Also a cure for rheumatism, kidney disease, eczema and all of the allied diseases of the bladder and stomach. It acts especially upon the gastric juices of the stomach, aiding the assimilation of the food, and producing new blood, which no medicine will do.

It is of a superior character, and has no equal as a mineral water, and as such we recommend it to all readers who desire the best medicinal water in the world.

The Indian Medical Spring Water is sold as low as any other water. For prices, etc., call upon, or write to

THE INDIAN MEDICAL SPRING WATER CO.,
404 Masonic Temple, Minneapolis.

DOCTOR:

The Hypnotic Magazine (Monthly) furnishes you with all the latest discoveries in mental science and suggestive therapeutics. Cost, including the book, "Hypnotism Up to Date," as premium, $1.00 per year.

PSYCHIC PUBLISHING CO.,
56 5th Ave., Chicago, Ill.
Send for Sample Copy.

LECTURES AND ADDRESSES.

STATE MEDICINE.

An Address Delivered before the Minnesota State Medical Society, June 16, 1897.

By W. D. Flinn, M. D.,

President of the Society.

Ladies and Gentlemen of the Minnesota State Medical Society:

It has generally been customary for the president in his annual address, to review the scientific work of the year, and to call the attention of the society to any subject or subjects he may deem worthy of their consideration.

Although there has been no great discovery during the year, scientific investigation has been so active, the literature so enormous and the labor done in working out the details of practical treatment so great, that it will only be possible for me to call your attention to the more striking advances made.

Among the events of the year deserving particular notice are the production of an antitoxine of streptococcus infection by Marmorek, and its use in the treatment of erysipelas; Elsner's method for the diagnosis of typhoid fever and the discovery of the specific cause of bubonic plague, for which Haffkin has been using a prophylactic lymph with reported favorable results.. The latter would be of particular interest to us should the plague become epidemic in certain seaports of Europe.

I shall not discuss the treatment of diphtheria by antitoxin, but cannot refrain from calling your attention to the report of the Committee of the American Pædiatric Society appointed to collect statistics of the use of antitoxine in private practice. The committee received reports from 615 Canadian and American physicians, who reported 5,974 cases with a mortality of 12 3-10 per cent. W. D. Howels should have peopled his Altruria with physicians, for the doctor is your only true Altrurian, as ours is the only profession that works in season and out of season to reduce their incomes by keeping people well, and this leads to the subject of preventive medicine, where the profession has scored its greatest triumphs, and is of special interest to us at the present time on account of the bitter war that is being waged against the "great white plague"—consumption.

It is safe to say that from one-seventh to one-fifth of the human race die of tuberculosis. Some authorities even put it higher, and I am inclined to think that they are right, as many deaths from consumption are reported as bronchitis, diarrhœa, etc.

The post mortems conducted by Loomis at Bellevue Hospital a few years ago showed that 13 per cent of the deaths in that institution were from consumption, and that 73 per cent had been infected, which shows that tuberculosis is almost universally disseminated, and that few entirely escape infection. It is said that nearly 6,000 persons died from consumption in New York City during the year of 1896. If the same death rate held good for the rest of the country, but happily it does not, it would mean a mortality of about 200,000 for the United States from this disease alone. People would be up in arms if we had a death rate one-half as great from either cholera, yellow fever, small-pox or diphtheria, but we are like the inhabitants of a besieged city who become accustomed to the sights and sounds of war, and go about their business as though nothing was the matter. A few states and municipalities have taken measures to stay this great plague. Massachusetts has a home for consumptives almost completed. New York City disinfects clothing and furniture free of charge to the owner, and all rooms in which consumptives die are renovated before being occupied again. Two years ago the Michigan State Board of Health began what the politicians would call "a campaign of education," by having all cases of consumption reported to the board in order that printed circulars might be sent to the local health officer, attending physician and patient, instructing them as to the cause and prevention of the disease. The object of the board being to furnish instructive literature at a time when the interest in the disease, awakened by its presence, would insure the reading and carrying out of the preventive measures.

"The Missouri State Board of Health recommends that all pupils in the public schools throughout the state be given a course of instruction in the cause of consumption and means by which it may be prevented," and the medical and daily press have been making a fight against that crime against public health and decency so peculiarly American, viz.: spitting in public places. The discovery of the bacillus tuberculosis has made clear the means of its prevention, and we, as physicians, have a duty to perform in this matter, for, as Dr. Ritchie said, "we stand in the double relation of protector and educator to our patients." We should, if possible, prevent people from moving into a house recently vacated by a consumptive family until the house has been thoroughly renovated, advocate the tuberculin test for all cows, educate the people up to the point where they will consent to the destruction of all animals suffering from tuberculosis, constantly preach cleanliness, disinfection and isolation, and give our health authorities our support in any measures they may adopt to limit the disease.

There is encouragement in the report that the death rate from consumption has decreased one-half in Massachusetts in the past fifty years. Hamilton says: "Modern sanitation will only be satisfied by the extirpation of the disease."

In referring to state medicine and medical education, we are reminded that during the year death has summoned one of our number for whom we all cherished a warm friendship. I refer to Dr. P. H. Millard. I shall not attempt to pronounce the eulogy of P. H. Millard, but the medical profession of the state and the entire nation are indebted to Dr. Millard for his splendid work in behalf of medical education. Dr. Millard was secretary of the old State Medical Examining Board, and was interested in the passage of the new law, and I do not think I detract from the honor due the other gentlemen engaged in the work when I say that it was largely due to Dr. Millard's energy and ability as an organizer that the Minnesota Medical Practice Act was passed, and it is needless to inform you that the Minnesota Medical Law has been a prominent factor in the advancement of medical education in the United States.

For years the American Medical Association and the Pan-American Medical Congress have put forth their best efforts to induce congress to establish a department of public health, with a secretary who shall be a member of the cabinet, and there has been a bill introduced in the United States senate for that purpose.

In order to enlist your sympathy and earnest support in behalf of this measure, I shall read that portion of the bill relating to the duties of the secretary of public health:

"That it shall be the duty of the secretary of public health to obtain through all accessible sources, including state boards of health, municipal authorities, and the surgeons general of the army, navy and marine hospital service of the United States, weekly reports of the sanitary condition of all ports and places within their territories and departments, and he shall publish weekly abstracts of the information thus obtained, and other pertinent matter received by his department. The said department also shall, as far as possible, by means of the voluntary coöperation of state and municipal authorities of various general and special hospitals, sanitariums, public associations and private persons, procure and tabulate statistics of marriages, births (noting those that are illigitimate), stillbirths, with cause thereof, and period of uterogestation, and deaths from epidemic, endemic and all other diseases, specifying those of a degenerative character, such as malignant growths and affections of the nervous, circulatory, respiratory, secretory, digestive and reproductive organs, and from violence, accident, suicide, murder, and data concerning the fruit of consanguinous marriages and the transmissibility of the insane, alcoholic, syphilitic, nervous and malignant types of constitution to offspring, and to evils of race miscegenation. He shall also procure information relating to climatic and other conditions beneficial to health, and especially in reference to the most favorable regions in the United States for the cure or relief of chronic diseases, particularly consumption. He shall also procure information as to the prevalence and ruinous effect upon the body and mind of intemperance and prostitution. He shall endeavor to ascertain the extent, the origin and classification of insanity in the several states and territories of the country. He shall investigate the state of comfort of laboring classes in respect to their lodgment, their trades, occupations, the healthfulness of their workshops and the contents of the atmosphere they habitually breathe, and the prevalence of premature degeneration of the nervous and muscular system by the exactions of piece-work employment. He shall obtain information in regard to the soundness of their food and purity of water supply. He shall ascertain the ages at which the children of the poor are put to work, and its hindrance to their physical development, and their lack of a common school education. He shall seek through the state boards of health information of the hygenic state of the public school buildings respecting their illumination, ventilation and presence of noxious elements in the circumambient air. He shall seek information regarding the pollution of streams and navigable waters and public and private wells. He shall attempt, through the coöperation of the authorized medical schools in all states, to promote the most extended and thorough training of students in order to fit them for the responsible duties that devolve upon practitioners of medicine. He shall whenever any epidemic disease is spreading abroad, or in any country which by commercial or other relations may endanger the health of the inhabitants of the United States, have power to call a conference of the surgeons-general of the Army, Navy and Marine Hospital Service, and the executive officer or officers of the various state boards of health throughout the country, to consider and advise him in regard to the best methods to pursue, to protect the country against the invasion of any such epidemic disease, and the results of such conference shall be by the secretary of public health, communicated to the president and his cabinet for such action as they may deem wise and expedient."

In addition to the work designated as the duty of the secretary by the bill, you can see how much influence a department of public health would have in shaping legislation and urging on congress the passage of uniform national and state laws regulating the sale and inspection of food, water supply, ice and beverages, the manufacture and sale of drugs, with penalties for their adulteration, the sanitation of cars and shops, the hygienic management of contagious diseases, providing for and regulating disinfecting plants and bacteriological laboratories, and uniform laws, national and state, regulating state and interstate medical, surgical and dental practice.

There is no doubt but that medical societies throughout the country, both state and national, will give this measure their cordial support, but there is a way more effectual than having a society pass a resolution, and that is for each member to either interview or write his member of congress, and if you do this it is fair to presume that the Minnesota delegation at Washington will stand as well on medical matters as does the state.

Man is a conservative animal, and none more so than the average American citizen, and when you undertake to push the earth along, or advance on a certain line you will find that it requires hard work and united effort.

ORIGINAL ARTICLES.

A RESUME OF THE MEDICAL LEGISLATION OF THE PAST YEAR.*

By Thomas McDavitt, M. D.,

St. Paul.

The following letter was sent to the appropriate official in each state:

STATE OF MINNESOTA.

STATE BOARD OF MEDICAL EXAMINERS.

St. Paul, Minn., June 3, 1897.

Secretary State Board of Health:

My Dear Doctor.—Will you kindly send me by return mail a copy of your last State Medical Law, and greatly oblige,

Yours very truly,

THOS. M'DAVITT, M. D.,
Secretary.

The replies received gave the following results:

ALABAMA.

In order to be entitled to practice medicine in Alabama a successful examination must be passed before some one of the authorized boards of medical examiners.

The authorized boards are:

1. The Board of Censors of the State Medical Association acting as a board of examiners, and known as the "State Board."

2. The boards of censors, also acting as boards of examiners, of the several counties of the state, of which there are sixty-six, known as the "county boards."

The standard of qualifications, the subjects and methods of examination, and the rules for the government of the examining boards are such as may be from time to time prescribed by the State Medical Association.

The rules at present in force may be briefly stated as follows:

1. All examinations must be in writing, and must comprise ten different branches, namely, chemistry, anatomy, physiology, natural history and diagnosis of diseases, physical diagnosis, surgery, mechanism of labor, obstetric operations, hygiene, and medical jurisprudence. Materia medica and the practice of medicine are intentionally omitted from this schedule in order to avoid ground upon which different sects or schools of medicine disagree.

2. The examinations are conducted by a paid supervisor (who cannot be a member of the board), in such way as to render it impossible to obtain aid. The answers to the questions are separately valued, one hundred being the maximum. For an examination to be successful the final average must not fall below seventy-five. The time consumed in an examination is usually from six to ten days.

3. Every written examination made by a county board must be reviewed and reported upon by the state board.

4. The county boards are not allowed to examine any applicants for license unless they hold diplomas from reputable medical colleges, the State Medical Association determining the question of reputability. Non-graduates can be examined, but must apply to the state board.

5. If any applicant is rejected by a county board he cannot obtain a second examination by any county board until after the lapse of twelve months, but he may forthwith appeal to the state board, which will not review the previous examination, but proceed to give him an entirely new one.

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*Read before the Section of Medical Education, Jurisprudence and State Medicine of the Minnesota State Medical Society, June 16, 1897.

6. Eclectics and homeopaths must be subjected to the same examination as regulars. The law does not recognize sectarian differences amongst doctors, but erects the same standard of qualifications for all.

7. Any one proposing to locate in a given county of the state must apply for a license either to the board of that county or to the state board. From whichever source a certificate be obtained it must be recorded in the probate office. A certificate may be transferred from one county to another.

8. All examination papers are bound and so filed as to be of easy reference.

9. Fees:

To the supervisor....................	$10.00
For registering in probate office........	1.00

Passed 1886 and 1889.

ARIZONA TERRITORY.

Board of Medical Examiners consists of five persons—two regular, two Homœopathic, one Eclectic. Every applicant must be examined, and must possess diplomas previous to being eligible for examination.

March, 1897.

ARKANSAS.

County boards, holding quarterly meetings, which grants applicants certificates of qualification, which, upon presentation to clerk of county courts, permit registration. Also a state board of five members for examination of candidates who have been refused registration by any county board.

Approved March, 1881.

COLORADO.

"THE COLORADO STATE BOARD OF MEDICAL EXAMINERS.

"T. A. Hughes, M. D., Secretary.
"Denver, Colo.

"Denver, Colo., January 7, 1896.

"Dear Doctor:

"The laws regulating medical practice in Colorado are essentially as follows:

"Those physicians presenting diplomas from recognized reputable schools are registered upon presentation of diploma or other sufficient evidence of graduation; fee, $5.00.

"In lieu of such diploma, the physician may present five affidavits from responsible persons setting forth that he has practiced medicine for ten years continuously, as a business—these affidavits to be sworn to before a clerk of the district or county court in the county in which they are made. The clerk shall state that he knows the affiants to be persons of integrity. Such applicants must appear in person before the board at a regular meeting. Fee, $5.00. The ten years' practice alluded to must NOT have been in this state since the passage of the act of March 14, 1881.

"Other physicians may be examined in anatomy, chemistry, physiology, pathology, surgery, practice or medicine, and obstetrics and diseases of women. Fee, $10.00. Examinations at regular sessions, the first Tuesday of January, April, July and October.

"Only residents of Colorado are registered.

"Yours very truly,
"T. A. HUGHES, M. D.,
"Secretary."

No change in the law.

CONNECTICUT.

Three boards—Regular, Homœopathic and Eclectic of five members; each state society recommends members to state board of health for respective practices. Secretary of each medical society shall file list of colleges recognized as legal. Only holders of diplomas from one of these colleges are eligible for examination.

Approved, 1893.

"A new medical practice act will go into effect July 1, 1897, but it has not yet been printed and I have no copy of it.

"Respectfully,
"C. A. LINDSLEY,
"Sec. Conn. State Board of Health."

CALIFORNIA.

Three boards of seven members each who examine diplomas and grant licenses.

DELAWARE.

Only registration of diplomas. The board of examiners to examine diplomas for registration and grant licenses to be appointed and be of such members as the State Medical Society desires.

Approved April 13, 1883.

DISTRICT OF COLUMBIA.

A board of medical supervisors consisting of the presidents of the three boards of Medical Examiners and two persons (not M. D.'s) appointed by the Commissioners of the District of Columbia. Said Board of Supervisors supervise all examinations and issue licenses. Each applicant for examination must be certified by the Board of Supervisors to the board of medical examiners whose system of medicine he intends to practice. Applicant must have a diploma, and if issued before July 1, 1898, must have three years course of study; after said date four years. Commissioners of District of Columbia shall appoint three boards of five members each—regular, Homœopathic and Eclectic—chosen from ten names presented to them from each District of Columbia Medical Society. These boards submit questions to the Board of Supervisors, which board choses the questions to be asked applicants by the boards of medical examiners; an official report of the results, together with markings, and paper is certified back to the Board of Supervisors by the board of examiners within fifteen days after examination. After examination the Board of Supervisors grant or refuse a license. Appeals may be taken to the commissioners of District of Columbia.

Passed by House, February, 1896.

FLORIDA.

There are eight examining boards, one for each judicial district, and one for the state at large to examine Homœopaths and Eclectics. Applicants must present diploma and take examination.

May 31, 1889. No change.

GEORGIA.

Three independent boards requiring diploma before examination can be taken.

ILLINOIS.

All applicants for licenses must present diplomas to state board of health. The board is the judge of whether the college is up to standard. If so it issues a certificate to holder. If applicant is not a graduate, the board can examine and issue certificate in accordance with the facts.

July 1, 1887.

INDIANA.

Board of Registration and Examination of five members. Licenses issued on diplomas satisfactory to board. If not satisfactory candidate can be examined.

IOWA.

At present Board of Medical Examiners are also Board of Health. Issue license on presentation of diplomas. Law passed last winter makes separate board of medical examiners, and after January 1, 1899, examines all applicants, and no diploma can be recognized unless the college has at least four years in its course and each course at least six months. (1897.)

KANSAS.

Any person can practice who has a diploma from a college after at least two courses of lectures, or who has a certificate from some state or county medical society. Practically any one can practice.

No change in law since 1870.

KENTUCKY.

Diplomas only of reputable colleges recognized and board is the judge.

April 10, 1893.

"My Dear Doctor McDavit:

"Your note received. I am not in possession of the medical practice act, but by addressing Dr. J. N. McCormick, Bowling Green, Ky., secreary State Board of Health, he will send it to you. In substance it is that only graduates of a reputable college of medicine who have been in reputable practice can get a certificate. It is left with the State Board of Health to declare who are reputable practitioners. This clause has enabled us to drive every advertiser out of the state. The act has been declared constitutional.

"I am very sorry I did not get to see you at Philadelphia.

"Sincerely yours,
"J. M. MATHEWS,
"Pres. State Board of Health."

LOUISIANA.

Two boards—Regular and Homœopathic—of five members each appointed by governor as recommended by respective state medical societies. Candidate must exhibit diploma and be examined.

July, 1894.

MAINE.

After July 1, 1896, all applicants examined. Board of six members. No eligibility clause except "age 21; good moral character, and reasonable amount of knowledge of medincine."

1895.

MARYLAND.

Two boards; applicants must produce diploma and pass examination, or special examination may be given.

June, 1892. Amended, 1896.

MASSACHUSETTS.

Board of registration of seven; all applicants must be examined; no eligibility clause.

1894-95-96.

MICHIGAN.

Diplomas to be filed before county clerk. Practically nothing.

MISSISSIPPI.

State Board of Health examines applicants. No eligibility requirement.
1892.

MISSOURI.

Diplomas examined by Board of Health and certificates issued. Those without diplomas examined.
1883.

MONTANA.

Board of examiners of seven. Applicants must have diplomas from recognized medical colleges, which, after July, 1898, must have four years' courses of at least six months each.

NEBRASKA.

Registration of diplomas before State Board of Health. After January, 1898, only diplomas from colleges requiring a four years' course will be recognized.

NEVADA.

Registration diplomas. Practically no law at all. (1875).

NEW HAMPSHIRE (1897).

Three boards of five members. All applicants examined. Must have studied medicine four school years, nine months each, including at least four satisfactory courses of lectures of six months each in four different calendar years. Superintendent of public instruction is regent. Board submits questions to regents and he choses questions. Examiners examine papers, and after report to regent, he issues license.

NEW JERSEY.

The requirements are:

1. Evidence that applicant is more than 21 years of age.

2. Certificates of moral character from not less than two physicians in good standing, one of whom must be a resident of this State.

3. Candidates must be graduates from an accredited literary or scientific college, or have completed satisfactorily not less than three years course in an accredited high school or academy, or have received a preparatory education covering the following branches, viz.: Orthography, arithmetic, English grammar and composition, geography, history of the United States, algebra and physics, as certified by the State Superintendent of Public Instruction of New Jersey.

4. Candidates must have "received a diploma conferring the degree of doctor of medicine from some legally incorporated medical college (which in the opinion of said board was in good standing at time of issuing said diploma) in the United States, or a diploma or license conferring the full right to practice all the branches of medicine and surgery in some foreign country, and has also studied medicine four years, including three courses of lectures in different years in some legally incorporated American or foreign medical college or colleges prior to the granting of said diploma or foreign license; provided, however, that two courses of medical lectures, both of which shall be either begun or completed within the same calendar year, shall not be considered to satisfy the above requirements."

First exemption: Evidence of one year's service "as a member of the resident medical staff of any legally incorporated or municipal hospital or asylum," or of five or more years reputable practice of medicine and surgery may be accepted as equivalent to one year's study of medicine and surgery.

5. "All examinations shall be written in the English language, and the questions and answers shall be, except in materia medica and therapeutics, such as can be answered in common by all schools of practice; if the applicant intends to practice homœopathy or eclecticism, the members of said board of those schools respectively shall examine said applicant in the materia medica and therapeutics of the school in which such applicant intends to practice; the examinations shall be in the following subjects, namely: Sec. 1) Materia medica and therapeutics; (Sec. 2) obstetrics and gynecology; (Sec. 3) practice of medicine, including diseases of the skin, nose and throat; (Sec. 4) surgery, including surgical anatomy and diseases of the eye, ear and genito-urinary organs; (Sec. 5) anatomy; (Sec. 6) physiology; (Sec. 7) chemistry; (Sec. 8) histology, pathology, bacteriology; (Sec. 9) hygiene, medical jurisprudence."

Second exemption: "Applicants examined and licensed by or who are or have been members of state examining and licensing boards of other states, upon the payment of fifty dollars to the treasurer of said board, and on filing with the secretary of said board a copy of his or her license or certificate, certified by the affidavit of the president and secretary of such board, showing also that the standard of requirements of said board at the time of said license or certificate was issued was substantially the same as that required by said board, and of his or her affidavit as to the personality thereof, may be granted a license by said board without further examination thereby."

"Applicants for examination shall present to the secretary of this board, at least ten days before the commencement of the examination at which he or she is to be examined, a written application on a form or forms provided by said board," together with a certified check or money order for twenty-five dollars, the regular examination fee.

NEW MEXICO.

A mixed board, with no powers, 1882.

NEW YORK.

Three separate boards of seven members. Each State Medical Society nominate twice the number of men to be appointed to the Regents of N. Y. State, who appoint the Boards. The applicant must have had four courses of at least six months in four different years. Must have diploma and before receiving such must have had a collegiate degree or full course in academy or high school. Board submits questions to regents and they chose questions for examination. Examinations conducted by regent examiner. Papers delivered to examiners for marking and markings transferred to regents who issue licenses.

NORTH CAROLINA.

Board Medical Examiners seven members examine all candidates. No eligibility.
1889.

NORTH DAKOTA.

Similar to Minnesota.
1895.

OHIO.

Board seven members, registers diplomas and gives licenses on said diplomas. Examines applicants without diploma.
1896.

OREGON.

Board of Examiners five members. All applicants examined. No eligibility clause.

OKLAHOMA.

Diploma presented to Superintendent Public Health for verification.

PENNSYLVANIA.

Medical Council consisting of Lieutenant Governor, Attorney-General, Secretary Internal Affairs, Superintendent Public Instruction, President State Board of Health and President three State Boards of Medical Examiners. Said council supervises examination conducted by three boards, and issues licenses to those found capable.

SOUTH CAROLINA.

Medical Examination Board of seven. Examine all candidates who hold diplomas, after date of passage.
January 4, 1894.

SOUTH DAKOTA.

Board of Health also Board of Examiners. Register diplomas and give licenses to holders thereof, without examination. Diplomas must be from college which require three full courses of six months each.
February 16, 1893.

TENNESSEE.

Board Medical Examiners six persons. Candidate presents diploma or in lieu thereof can be examined and get license either way.
March 25, 1891.

TEXAS.

A Board in each judicial district of not less than three. Secretary of State Board of Health writes it as a dead letter and all that is necessary is to file diploma and they are not careful even about that.

UTAH.

Board of seven. License graduates of respectable colleges and examine others. Not thoroughly enforced.
March, 1894.

VERMONT.

No law. Have been unable to get any response from secretary but think the legislature passed some sort of a law last winter.

VIRGINIA.

Three from congressional districts, two from state at large and five homœopaths. State Board of Examiners. 1887, amended 1892. Any one can be examined, but no one can practice without an examination.

WASHINGTON.

Board of nine members. Examine all candidates. No eligibility clause, but a license necessary to practice.

WEST VIRGINIA.

Diplomas make a lawful practitioner. Any one not a graduate must be examined by State Board of Health.

WISCONSIN.

Board of seven made up from names sent to governor. To be sent to governor by the three different State Societies. Three Regents. Two Homœopaths and two Eclectics. Hold meetings quarterly. Every one after July 1, 1897, who begins practice, shall be required to have license from said Board. All persons shall present diploma from a college which has three courses of six months each. After 1904 four courses of six months. Said Board shall grant license on presentation of said diploma or shall examine an applicant if no diploma is granted. April 19, 1897.

This resumé represents the legislation of the different states up to date as fully as I have been able to get it. It indicates that every state and territory will be in line with a practice act in the near future. What more is needed? First the preliminaries should be more carefully guarded by the medical colleges previous to the entrance of the students as matriculants. Our last state legislature at the solicitation of the State University and Hamline medical department passed a law making an examination absolutely necessary before a medical student could enter either school, or that the applicant produce a university, a seminary or a high school diploma. This examination has to be made by a committee entirely disassociated with either medical college. This is also the rule at Harvard and at the College of Physicians and Surgeons, New York. Johns Hopkins does not allow a matriculant unless an A. B. degree is held. The latter standard is probably a little high at present, but will undoubtedly be adopted in the not distant future, and should be.

Second. The boards should have the authority to reject any and all candidates from any medical school whom they discover are not keeping up both its preliminary as well as professional standard. Unfortunately comercialism in the medical colleges is not entirely extinct. and the anticipated dollar often covers any bad defects in preliminaries as well as the professional acquirements of the new student, and the diploma is often given for the same reason, where the full time is unserved and can not be discovered. The honest and efficient administration of these laws depends upon all the profession as a body is in favor enthusiastically of all existing laws and propose to still increase the standard, and thus improve the attainments and morale of the new member, they will soon not only accept what a united profession demands, but will be in the van of future improvements.

It is unfortunate that there seem to be many different standards in different states, but the highest standard is bound to be the criterion, and no school will dare be long lagging behind the highest standard established, as their alumni will demand that their alma mater place their grades so high that all graduates may be eligible for every state examination, and necessarily this will force the adoption of the highest standard in existence. Minnesota has been in the lead so long and has "blazed the way" so frequently that we are all justly jealous that she maintain her leadership. Her law, at present, is still superior to every one, with the exception of New York. At the last session of the legislature as long as the preliminaries for entrance were put in a special law it was not considered necessary to ask any further legislation. In the recent legislation I desire to especially call attention to the manner such laws have gained ground. It is only four years since all New England and the Middle States had nothing on their statute books. Now only Vermont is open to the quacks, and of the Middle States all are in line with exception of West Virginia. Some of the laws could be much improved on, but it is an indication of the "leaven" working. It seems strange that this portion of our country which prides itself on its high grade gray matter, should be so slow in recognizing the finger of progress and the necessity of supporting measures fraught with so much importance to the future of medical science, not to mention the safety of the people.

The principal cause of congratulation in medical legislation in the last year is the final passage of an act in Wisconsin. That has been attempted time and again, and has always been thwarted by the active opposition of part of the press and the lukewarmness of some in the profession, not to call it by a harsher term. Finally an entrance has been affected, and a law which will be of immense benefit, although it could be better, and righteousness has begun to assert itself, even in Wisconsin. The quack, the pretender, the badly educated doctor, it is hoped, will, in the near future, be a reminiscence.

May this millennial dream acquire a substantial substance.

TUBERCULOSIS.*

By D. M. Cool, M. D.,

Faribault, Minn.

Any well informed man of experience in the practice of medicine who will look over the years he has been struggling with disease, and especially tuberculosis, and compare the treatment of ten, twenty or forty years ago, will have no difficulty in noting the changes in the etiology and treatment that has from time to time been brought before the profession, and how all, or nearly all, at least, have had their followers and strong advocates. Nearly all have fallen by the wayside. Today we have the positive bacteriologist who knows he has solved the problem, and we see state and municipal health boards quarantining the unfortunate consumptive, shutting him up, depriving him of fresh air and exercise, or trying to do so, two important means for restoration to health.

I know I am treading on dangerous ground; that if I dare to question the soundness of his theories and the seemingly positive experiments of the bacteriologist, that I am liable to attacks of those gentlemen, and to be relegated to times long gone by, in fact called a fool or more politely a "crank."

That there are microbes in the sputa of a consumptive there can be no doubt, but that they are the primary cause of tubercle is beyond my belief.

The word tubercle was first used without any specific meaning to describe a small nodule. In 1796, Bailie, of London, Eng., gave the first description of tubercle as found in the lungs. It was soon learned that these nodules were associated with a destructive disease of the lungs and they were described as being of a cheesy character. Bacteriology has demonstrated that they contain a certain form of microbe which has been named "bacillus tuberculosis." Even as much as twenty years or more before the discovery of the bacillus as it exists in man it was found the disease could be communicated to rabbits by inoculation of this tubercular matter. It is now largely believed to be the cause of tuberculosis.

Koch, in 1881, claimed to have demonstrated this beyond a doubt; and, as I said before, bacteriologists are sure they have absolutely demonstrated this fact. This may be all true, but we have had this positive knowledge for at least fifteen years, and what has been accomplished? One might say in truth almost nothing. Great claims have been made by Koch and his disciples, yet one can hardly point to a life that has been saved.

In my field of observation I have never known of one who has been benefited in the least, and I can count more than fifty cases; some of these had been treated by expert specialists and with serum from the laboratory of Koch, yet they all passed into the grave. I could extend this paper indefinitely by quoting from Koch, Baumgarten, Weigert and a host of others, but you are all familiar with them. It has been stated by a large number of observers that if a person is in a perfect state of health that the bacillus if inhaled finds no nidus; that the mucous membrane of the air passages must be in an unhealthy condition in order to furnish this resting place as well as soil to propagate its growth. These conditions are present from various causes, such as the depressing influences arising from anæmin from any cause, as indigestion or loss of blood, or any depressing influence, such as grief, overwork, bad food andbad air, lowering the vitality, and consequently the digestion and assimilation of food.

Pregnancy with its indigestion, the necessity of furnishing nutrition not only to the mother, but to the fœtus also; then the labor with its loss of blood, pain and overexertion are strong factors in the production of acute tuberculosis, as no doubt we have all painfully realized.

Tubercle has been described as presenting a miliary, infiltrated or encysted form; these distinctions have no reference as to the cause, but merely to the age of the exudation. There is no use to describe it here, except to say it is animal matter of a low grade of life.

We all understand the metamorphosis of tissue, and we know it puts on forms that are normal and forms that are abnormal, but why it puts on abnormal forms there is difference of opinion. In order to make myself better understood in this I will quote the language of that great man in his profession, Thos. King Chambers. He says, "Man's body is likened to a stately mansion made of perishable materials, all of which are always needing repairs to keep up the shapeliness and usefulness of the building. But not all in equal degrees; some of the walls may stand unaided for years, while others need hourly looking after." This illustrates the condition of our bodies. The more we toil with our hands, or the student with his brain, the more quickly do the tissues wear out and are returned to their ultimate elements, and as such carried into the circulation, and on its return back to the heart are eliminated by the skin, kidneys, glands of the bowels, liver and lungs. In this manner are returned to the ground the same identical elements that had been required to develop plant life.

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*Read before the Section of Medicine of the Minnesota State Medical Society, June 17, 1897.

Quoting again from the same author who claims that an "ordinary sized person in perfect health and in middle life loses all of the soft tissues of the body in three months and a half, and as rapidly rebuilds them from the food he eats." This, if we think of it, is apparent to all; take any warm-blooded animal, put him in a barn and feed him a little once in a week or ten days; it will not take you more than three months of this partial starvation to destroy the larger part of the soft tissues; then if you restore the food to him in a proper manner, coupled with good care, in about that length of time his flesh is restored, and he becomes a fine active animal again. Life rests on the metamorphosis of the tissue or the renewal of the same in the body; the more perfect this renewal, the individual fulfills more completely the duties of life. If this metamorphosis stops altogether, death follows. If it partially stops the order of normal phenomena is disarranged and health for a time is expelled and there follows a state called disorder or disease. There are no such conditions as a superabundance of life, or excess of vital action; there cannot be too active a metamorphosis of healthy tissues into complete form, for the fresher their organic constituents the more serviceable they are, and the longer duration they have before them. There cannot be too close an adherence to that healthy form which it is the business of metamorphosis to keep up, any more than there can be too exact an obedience to law and order. "The most active renewal possible, the highest development in every part, is health. Complete cessation is death" (Fothergill).

Partial cessation, then, that is the presentation of material in an incomplete form, is disease; in other words, the soft tissues of the body all die and are returned to the inorganic kingdom, and it is rebuilt by the food we eat, and as this work is done either for good or bad so will our health be.

Order is the first law; nothing that occurs in the world happens by chance; everything is arranged upon definite principles and never at random; the world and all it contains is governed by law; character, health, happiness and life are governed by the unerring law of the Creator.

Man forgetting this, expects health and rest during a long life, although he breaks the law every day.

From this standpoint you can readily see the object and aim of this paper. We observe in tubercular exudations that it occurs for the most part in young subjects; also that it may occur in different tissues, that its progress is generally slow, that there is no disposition to perfect cell structure. The laws of chemico-physiology, as we all know, are exacting. The nutritive material must have passed through and conformed to this exacting law, or like the stone the builders rejected, be thrown among the rubish. As a further explanation take a piece of beef steak. This differs from our own muscular structure only in grade of finish. It contains the same elements, and each element furnishes the same equivalents that go to make up the human muscle; and there is no one who, without a microscope would dare say under oath whether it belongs to the lower or higher order of animals. This is animal matter and at a glance it would seem that there could be but little to do to render it fit for assimilation; but we all know that muscular fiber has to be broken down and with a retrograde movement brought back into fibrine, and so on from stage to stage, until it becomes albumen again. Then in rebuilding it into muscle begins the absolutely necessary fine work not needed in the lower order of animal structures, and as the metamorphosis goes on step by step, it is brought to that high grade of formation, that when presented for assimilation the cells can handle it, and it again becomes muscular structure. Understand this: albumen is a common point to which all nitrogenous food must be brought, whether we begin with the crude food of the vegetable kingdom, or we eat the flesh of animals. In the former we bring the nitrogenous portions up to this common point, and in the latter we take the muscular fibre, and as spoken of, bring it back into albumen again. All must conform to physiological law. When this is done this food material is assimilated, placed here and there throughout the body wherever required, lives its allotted time, nourishes and supports the body and dies; becomes our enemy and must be gotten rid of.

Now unless this formation of tissue conforms to the exact law and the food is brought up to that high standard necessary to take its place as tissues of the body, it of a necessity cannot be assimilated, and remains in the blood or is deposited in some low form of life, unable to put on healthy cell structure. Here we have, in my opinion, the origin of tubercle and most of the abnormal structures of the body. The whole thing hangs upon the proper digestion of the food, so that it may be brought high enough to take its place as healthy tissue and be enabled to resist the bacillus, when it seeks admission into our organisms. Take two persons as nearly alike as can well be, subject them to the same dyspeptic conditions, one whose antecedents have all died with consumption, and the other with cancer; the one will make tissues ready for cancer and the other for consumption or tuberculosis in some form, because they have inherited this dyscrasia; and the microbe is of a secondary origin.

It is not the tubercle we inherit, but the tendency to put on tubercle when there is faulty preparation of the nutritive material.

When we fail to bring the food up high enough to make normal tissues it is in the blood, and how are we to get rid of it? It cannot form normal tissues, live its allotted time and die and fall to pieces, returning to its ultimate elements, and then be carried out of the body, because in its formative stage the law has been broken. A law is not a law if there be no penalty for its violation, and here the penalty is according to the inherited dyscrasia. In all of my long experience (almost fifty years) I have never met with a case of tuberculosis that did not show in its early history a faulty digestion.

From this long study of the symptoms and cause of tuberculosis I have been led to the conclusion that it is primarily a disease of digestion, causing first an abnormal metamorphosis of the material intended for the renewal of the body, and, second, the resulting exudation of tubercular matter; and third, owing to the successive formation and softening of these, and the ulceration which follows in the pulmonary or other tissues, the destructive results which so plainly present themselves to our view. It is a fact that no one familiar with post mortem examinations can deny, that it is not uncommon to see scars an inch or an inch and a half long, representing enormous cavities that have healed.

The successful treatment of tuberculosis must be on analeptic lines. First, by promoting normal digestion and thereby improving faulty nutrition; second, fresh air and exercise according to the strength of the patient; third, hygienic surroundings and a cheerful state of the mind. These are all essential to the welfare of the patient.

The diet should be within the ability of the patient to digest, and should consist largely and in many cases entirely of animal food, beef, eggs, oysters and cream. I am of the opinion that we many times fail to restore our patients to health because we depend too much on medicines, and too little on what our patients eat and how they eat it. In the first stage of the disease, if we are fortunate to be consulted thus early, after we have mapped out by percussion a patch of tubercular deposit in the apex of one or both lungs, we should consider the ability of the patient to eat, digest and assimilate food. Shape the amount and character accordingly, and locate the organ or organs that are at fault, using aids to digestion accordingly.

The point I wish to convey is this, that in all chronic cases the road to health lies along the physiological paths of restoratives plainly manifested, and not along the mysterious route so many would lead us, because it is mysterious. We must know ourselves in health to be able to recognize ourselves in disease, and when this is accomplished and the law laid plainly before us, we know that we must not expect to create new tissues of a healthy character to crowd out the old, diseased or worn out ones except by the food we eat, and that food must correspond to our ability to digest and assimulate. We must learn that nature is an important factor and must be consulted. The thinking physician will, as Sydenham is reported to have done from year to year, have more faith in physiological restorative treatment than in any other. Like this great man, learn that it is not all medicine that cures our patients. I think our aim should be to get as much nitrogenous, as well as carbonaceous food as is possible for the patient to take care of in such a manner that it may be applied to the renewal of the body.

In this way you can replace the old ill constructed tissues, and if the case has not gone too far it will be benefited thereby; and in softening of the tubercular mass you place your patient in the most favorable condition to furnish new material for the healing of the resulting cavity. Don't think you can get rid of this tubercular mass that is already there, for if you do you will fail. This part of the lung is hopelessly gone, or rather ruined never to be restored by any kind of treatment, and time spent in trying to eliminate the tubercle or kill the bacillus is too valuable to be used in this way. We must correct the errors of diet, thereby placing at the disposal of the patient new, well-formed material to form tissues to take the place of the old or diseased ones.

The correction of diet is a hard thing to do, especially in private practice. Leave the respiratory organs alone, and direct your attention to the organs of nutrition, which will receive with thankfulness and return with interest the care you bestow upon them. Some one has said, "The chest is the battlefield of conflicts, the stomach is the ripening ground for new levies of life." Some may answer me when I say leave the respiratory organs alone; these organs are important, and here is the seat of disease. Remember we are dealing with a disease somewhat advanced and the tubercular deposits are the result of conditions antedating the time when we are called to treat the case; and if we spend our time in trying to eliminate or expell this mass, our patients go right along making more tubercular matter, and the end comes in spite of us and our treatment.

I make the assertion that it is only through the aid of digestion that consumption can be cured. Medicines directed to other parts of the body, may be indirectly useful sometimes, but they more commonly impede the recovery;

whereas medicine judiciously employed with a view to aid the repair is almost always beneficial and many times successful.

Osler, in his work on practice, page 252, in speaking of Koch's tuberculin in consumption, says: "It is a remedy to be used with the greatest caution. Of the twenty-three cases in which we used it at the Johns Hopkins Hospital, only three seemed to be benefited. In the others the action was either negative or actually detrimental." The appetite should be the great object of our care; we often find this sadly wanting. Here I have found strichnine and quinine of service, and in my hands the best. If my patients are somewhat advanced, say in the second stage or approaching the third, I usually adopt this course. I cause them to send to the slaughter house and catch the blood from the bullock's throat, and as it loses the animal heat stir it with a clean stick until the clot is well formed or separated from the serum; then strain it through a cloth throwing the clot away; by so doing we separate the fibrine, leaving the pure albumen. Here you present to your patient, properly diluted pure albumen mixed with other component parts of the blood, in good condition to pass into albumenose, and so on in our own peculiar way of preparing it, making good material for the nourishment of the body, crowding out the old and replacing with better, stronger and healthier tissue. I use this blood serum in the proportion of one of serum to three or four and sometimes five of water, and as warm as the patient can take it but not hot enough to coagulate the albumen the serum contains. This should be given once in three or four hours, night and day, in amounts suited to the patient's ability to take care of it. If there is a weak gastric digestion I give pepsin and hydrochloric acid diluted with water. If there are evidences of intestinal disturbance, I am in the habit of giving a pill made of inspissated ox gall and pancreatin in equal parts. This I have used for thirty years in most chronic intestinal diseases that have come under my care.

As my patients grow stronger I give animal broths and cream; next come milk, raw beef and oysters, then rare cooked meats, and lastly vegetable food. I prefer to commence feeding my patients with this blood serum because it is a common point arrived at in all warm-blooded animals in digesting the nitrogenous portions of their food. If they are of the herbivorous order they begin with the lowest order of food, the only kind that will support this form of animal life, vegetable food, taking the nitrates and bringing them up to a common point albumen; and from there in their coarse way, make it into muscular tissue. If man takes vegetable food, his work lies along nearly the same lines until he arrives at the same common point of albumen; but from there on begins his peculiar fine work, which is absolutely necessary in order to place it as connective tissue in his body. If he eats animal food he takes the muscular fibre, and with a retrograde movement described before breaks up the fibre and returns it into fibrine the same as the blood clot, and so on in this retrograde movement until it becomes albumen again. Then begins his own fine work bringing it back into muscular fibre again suitable for his use.

So far as medicines are concerned, quinine, strychnine, and something to allay cough and nervousness are all that are required. The balance should be aids to digestion. Everything conceivable in medicine has been recommended for the cure of consumption. Dr. John Hastings recommended naphtha as an unerring cure, and of our own day we have men urging vasalin as a cure. There have been many charms and I might say incantations recommended. Iodine and its preparations have had their day, alteratives have had their day, and been used in long continued courses. Finally the germ theory was developed, and with it came the celebrated Dr. Koch, and his tuberculin. As we all know he is a man of great learning, and, of course, it savors strongly of egotism for me to question anything he might say on any subject; but I learned long ago not to accept for truth all I read even if it did come from a man occupying the front rank, as he undoubtedly does. If it be the duty of any one to enunciate doctrines that have reasonable grounds for their support, it is not his duty to shrink from the responsibility of setting forth those doctrines merely because by so doing it might involve him in opposition to the opinions of any individual, no matter how important that individual may be. This treatment partakes strongly of the "similia simillibus curantur" of Hahnemann. To me it seems absurd to inject into the patient's circulation the result of a cultivation of the same death dealing bacillus that is already destroying the patient. Along this same line came Borgeron, with his sulphuretated hydrogen gas. Believing in the microbe theory, and knowing that sulphuretated hydrogen gas destroys all forms of animal life, he conceived the idea of reaching the lungs with this gas by introducing it into the rectum till by absorption it made its way into the circulation, and in this way into the lungs of the patient, until, as one of those victims said to me, "My breath was so terrible that I could hardly endure it." Yet with all of this murdering of the bacillus death claimed her as its victim. Many cures were reported by the followers of Borgeron, but in a short time they all found a common resting place.

There is another treatment that at one time had a large following, and that is free use of alcholic liquors in some form and known as the Brunonian treatment. Dr. Brown, of London, England, knowing of the power of alcohol to prevent, or rather retard, the destructive assimilation of the tissues of the body, and as an early loss of flesh is among the earlier indications of tuberculosis, conceived the idea that it would have a beneficial effect in retarding or arresting this loss and eventually cure most cases. He had many strong believers in this theory, notwithstanding that alcohol as a rule is imcompatible with gastric digestion. He persuaded himself that it was the remedy in tuberculosis as well as a panacea for human ills of all kinds and a direct prolonger of life. He used to lecture with a brandy bottle by his side, and succeeded in ruining his own health and filling an early grave.

I know the grounds taken by this paper are at variance with the commonly received opinion of the profession, and I do not expect all to agree with me. I had two objects in view in presenting this paper: First. It corresponds with my convictions that in this as well as in all chronic cases the road to health lies along the physiological paths of truth so plainly manifest in the restorative plan of treatment. If by contagion a person contracts tuberculosis it must be by inhalation, as some think it is contagious and the bacilli are taken into the system in small quantity, and these must increase in number in order to produce the disease. It is claimed by bacteriologists that in order to do this we must have a cultivating medium or soil that will furnish material for its nourishment and growth. If it is necessary, as claimed, in order to have tuberculosis there must be first the bacillus; second, a nidus or resting place in which to exist, and, third, material for its growth and development. This necessarily brings us back to the standpoint on which this paper is based, namely, abnormal reconstructive material in order that the causes already enumerated may form the tubercle. If the reconstructive material is of a healthy character, it is not food for the bacillus and can not aid in its growth and development, and, in turn, it fails for the want of sustenance; as we are led to believe, a perfectly healthy mucous membrane does not permit of its growth; it must have unhealthy tissues in order to exist.

I beg leave to report a few cases out of quite a number that have occurred in my own practice, where it was successful so far as a cure can be obtained by any treatment.

Case I. Mr. Z. T., aged 30, a man of considerable natural vigor, had been a dry goods merchant for a number of years; by irregular habits regarding eating, going to his meals at all hours of the day and eating hurriedly, violating all physiological law, he became a confirmed dyspeptic; this was followed by a loss of flesh, diarrhœa, cough and hæmoptysis, with temperature never below a hundred, with an afternoon rise of one or two degrees. This patient had been ill for four or five years when I first saw him, and had given up all hopes of recovery. There was unmistakable evidence of a cavity in the right lung, with a dullness of the upper portion of both lungs. Hectic fever, loss of appetite, with distress after eating, bowels constipated or a diarrhoea all of the time. Treatment consisted of raw beef, raw eggs, raw oysters and milk for his diet and cod-liver oil and inspissated ox gall and pancreatin in combination for intestinal irregularity. Pepsin and hydrochloric acid and water after meals to aid gastric digestion. We had a hard time with this patient; he could not be satisfied, as he termed it, without something to eat. He was given strychnine or nux vomica to increase his appetite, and was not allowed amylaceous food, and he thought he was starved and would break over the rule, and then would come a sick spell as the result, until he saw that when he violated the rules of diet he paid for it in getting worse, and finally he settled down to his diet and gradually improved, and today thirty years have elapsed and he is an old man and comfortable.

Case II. A child fifteen months old; both parents of consumptive families; mother did not nurse any of her children; had a large family; succeeded in raising one, who at the age of fifteen developed phthisis and died. This child was reduced to almost a skeleton, had cough, high temperature, bowels tympanitic and a constant diarrhœa, dullness of apices of both lungs with mucous râles over a large portion of the right lung. The child was put upon blood serum one part, water four parts, heated to a proper temperature, salted a little and fed to the child in suitable amounts once in three hours. Pepsin and hydrochloric acid were given to aid gastric digestion. This case made a good recovery, and now, after fifteen years of apparent good health, has slight dullness of the apex of both lungs, but has plenty of healthy lung tissue able to depuriate the blood, and bids fair to live to a good old age.

Case III. In March, 1872, I was called to see Mrs. G., aged 24 years; had given birth to three children in four years. When she came under my care there was evidence of cavities in both lungs, and especially in the left. Gurgles were present with their high pitch and hollow sound, distinguishing them from large mucous râles, indicating a cavity filled with fluid. Flattened chest walls, dullness on percussion and prolonged expiratory murmur over nearly the whole of both lungs, frequent hemorrhage, night sweats, chills after noon, fevers and diarrhœa made up the case. I frankly gave an unfavorable prognosis, and told her that, so far as I could see, her case was hopeless; that I had no faith in any treatment prolonging her life. I recommended blood serum, quinine and strychnine, with a simple cough mixture composed principally of hydrocyanic acid and a small amount of morphine. To aid in the digestion of the blood serum I gave her pepsin and hydrochloric acid. For the diarrhœa I gave inspissated ox gall and pancreatin and tannin. I had the satisfaction of prolonging this patient's life eight years. Of course, there could be no cure, but she lived and was a comfort to her family. She finally died with pneumonia, and a post mortem revealed scars from half to one and three-fourths of an inch long.

Case IV. Mr. A. E. T. By profession a druggist; not of a consumptive family; aged 30; habits good, except in manner of living. After passing through the hands of several physicians, and some of them specialists in disease of the chest, he returned to his father's house to die, losing all hope; low spirited, weighing less than 100 pounds, while his ordinary weight was 180 pounds. When I was called to see him he cooly told me he had no use for me, and that he had taken all of the medicines he would ever take; that he knew there was no help for him, and consequently he did not care to try again. After talking with him a while he consented to let me examine his lungs. I found respiration 30 in the minute, pulse 120, night sweats, almost total loss of appetite, bowls irregular, either constipated or a diarrhœa, severe cough, had had a few attacks of hæmoptysis, temperature always above 100, great debility and despondent. Dullness in upper portion of both lungs, chest flattened, prolonged expiratory murmur and an almost entire absence of vesicular murmur in upper lobes of both lungs. Very little expansive power of chest walls on forcible inspiration. After talking with him awhile he concluded to try once more. I first put him on raw meat, raw oysters and milk, with a little fruit. Under this his stools became fœtid, the diarrhœa worse, and I changed to blood serum and water alone; with this I gave pepsin and hydrochloric acid. In a short time he began to improve, felt stronger, which inspired hope. He continued this treatment for about two months; then he was allowed Hamburg steak, and in six months he was able to do a little work, and in a year weighed 180 pounds, and today, after two years, he has the appearance of a healthy man. The last time I examined him there was some dullness of the apices of both lungs, and in all probability there always will be a part of both lungs that will remain consolidated as long as he lives.

These are only a few cases out of the many that I have treated on this plan. The greatest trouble that I have had to meet is the opposition to being placed on a restricted diet. Some one has said, "Touch a man's stomach you touch the dearest thing to him on earth; the next is his pocket-book, and then comes his wife and children." Sometimes I am almost constrained to believe it.

Varying Infection in Pneumonia.—Dr. W. H. Thompson, of New York, in an interesting article recognizes that of late years lobar pneumonia often fails to follow the definite course commonly ascribed to it. Although its onset remains much the same in its suddenness, and in the rapid development of its acute symptoms, yet for some time he has declined to fix the probable date of the crisis or the duration of its subsequent stages. It may be that the advent in 1890-'91 of the severest and most prolonged visitation of epidemic influenza recorded in history may have something to do with this change by contributing the influence of a mixed infection; but whatever be the cause, there is little doubt that acute lobar pneumonia now often departs more widely from its former characteristic course. In the histories of a series of eleven cases occurring consecutively in his winter service in Bellevue Hospital, in only three of them could it be said that they conformed to the old fashioned type, with a definite crisis and a progressive change for the better afterward, while in three a partial crisis only occurred, and in five none at all. In eight out of the eleven the convalescence was very tedious, and marked by a variety of constitutional symptoms, in which often the essentially toxic nature of the disease was strikingly indicated. Nothing could better illustrate than they did what a gain it was to modern pathology when lobar pneumonia was finally recognized as more an infection than an inflammation, and that its danger is due rather to systemic poisoning than to pulmonary damage. That infections by microörganism, however, should vary in their developments from time to time is what we should expect, and it is this feature which a brief abstract of these clinical histories seems particularly to exemplify.—*Universal Medical Journal.*

Dr. Nansen, the Arctic Explorer, recently expressed his belief that scurvy was a chronic ptomaine poisoning, the ptomaines being derived from badly-preserved milk, tinned meat, or salt beef. He believed that if the provisions were well sterilized and no subsequent changes took place in the food, there would be no scurvy in the ship's crew, and it was unnecessary to take preserved vegetables or lime-juice. No doubt, regular exercise, fresh air, and temperate habits also conduced to freedom from scurvy, which has been in times past such a scourge and a danger in Arctic exploration.

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BACKERINE.

There is no branch of the science of medicine more interesting than that which relates to experimental therapeutics. In former years the researches in this direction consisted in the trial of drugs, sometimes upon lower animals, sometimes upon the experimenter himself, and often upon the medical student ambitious to acquire fame and favor incidentally while aiding the progress of scientific research by taking the risk of swallowing medicines whose effects could not be foretold. Of late years drug investigation has been pushed into the background of popular interest by the experiments upon bacteria and their products. Investigations are going on all over the world by experimenters following various paths, some endeavoring to find a therapeutic agent by studying the bacteria themselves and their products, others directing their attention to serum therapy, others to the phagocytic action of cells, while others yet are following new paths most of which probably lead nowhere, while perhaps one in a hundred opens up new fields of research with perhaps illimitable possibilities farther on.

The method of DeBacker and the production of his product called Backérine is the result of work in the track of Metchnikoff's theory of phagocytosis. Although work in this direction has been going on for some five years, it is not generally known. There has been an occasional reference to it in medical journals and a few pamphlets have been written about it, but the standard works upon therapeutics and bacteriology, even in the latest editions, make no mention of it, though having much to say of Koch's tuberculin and Behring's antitoxin. A good account of the method, however, was presented at the Montreal meeting of the British Medical Association by Mr. Horace Manders, of London, who has collected together the facts thus far established by DeBacker and gives the conclusions to be drawn from them.

DeBacker's interest in the subject was first aroused by learning that in some wine whose fermentation had gone wrong the cells of the ferment were found to contain within them the bacillus aceti. Further investigation showed that most of the saccharomyces, or yeast fungi, are active phagocytes for all kinds of bacteria. This led DeBacker to hope that he had found a powerful auxiliary to the leucocytes in the war which, if Metchnihoff's theory of phagocytosis be true, these cells wage against pathogenic bacteria. In this direction he instituted a series of experiments, at first rather unsuccessfully, but fortunately he soon discovered that the keynote of his failure was the use of impure yeasts. By obtaining a pure culture of one of the saccharomyces, mixing it with fermentable material and injecting it into a guinea pig, he was able to prove by analysis of the animal's breath that an alcoholic fermentation took place within its body, and that too without harming the animal's health.

It is this combination of a pure culture of a yeast ferment with sterilized fermentable material to which the name "Backérine" is given. The next step was to inoculate animals with diphtheria and tuberculosis and then inject Backérine. The results from this were most encouraging and led to a trial of the new substance upon man. It was found that the injection was followed in about five hours by a marked chill succeeded by profuse sweating, after which the subject of experiment went through all the stages of a mild intoxication owing to the presence of alcohol and carbonic acid in the blood, the whole reaction lasting some three days but finally passing away without leaving any injurious effect upon the system.

As the result of many therapeutic experiments with Backérine its discoverer claims that when used in the early stages of phthisis the disease has nearly always been arrested; in the second stage of the disease about seventy-five per cent. of cures is claimed, while in the later stages where there is extensive destruction of lung tissue there is a modest silence as to the results. In the treatment of cancer DeBacker's own words are: "Out of a total of sixty tumors, we have seen eighteen cures lasting over some years. Of these, four had been operated upon with rapid recurrence. Twelve cases of very rapid growth also had been very markedly retarded." Needless to say there must be strong corroboration of these results before it will be safe to base upon them great hopes that a cure for cancer has been found.

As to the action of Backérine its author's explanation is that it substitutes a healthy fermentation for an unhealthy one. The same thing is seen in wine making. It sometimes happens that the wine wort turns sour owing to the presence of bacilli (acetic, butyric or lactic) so that instead of the proper alcoholic fermentation an acid fermentation goes on. Now introduce into the wort a certain quantity of pure ferments and the acid fermentation is stopped with a return to the true alcoholic fermentation. So in the human body in a case of phthisis Koch's bacillus is carrying on a pathological fermentation which the Backerine stops by its phagocytic action upon the bacillus.

This is a very pretty theory and logical enough if all the facts are known and known correctly, but with many disappointments behind it, it cannot be expected that the therapeutic world will jump at once at enthusiastic conclusions. There is however great satisfaction in the knowledge that all these researches are going on and that some of them at least produce definite results even though these results fall short of the most ardent hopes. He must be a pessimist indeed who does not believe that at no very distant day the labors of the experimental therapeutist will be rewarded with an overwhelming success in the struggle for mastery over disease.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. BEARD, M. D., SECRETARY.

ANNUAL MEETING, WEDNESDAY, OCTOBER 2 1897, at the West Hotel, Minneapolis; the President, Dr. W. A. JONES, in the Chair.

Dr. JAMES E. MOORE, of Minneapolis, presented two specimens with the following reports:

The first of these specimens was an osteosarcoma of the femur, for which he had performed an amputation at the hip joint on the previous Saturday. The patient, a sixteen year old girl, had noticed a growth in the lower part of the thigh for nearly two years. The growth had been very slow until within a few weeks, since which time it had been quite rapid. He employed Wyeth's bloodless operation and the patient lost very little blood and has been normal ever since.

Dr. A. W. ABBOTT, of Minneapolis, said he would like to ask, not in a spirit of criticism, for he had witnessed the operation, but for his own information, if, as the books state, a very large percentage of these cases die from a recurrence in spite of this operation, why perform the operation at all, since there is a very large mortality rate connected with the operation itself?

Dr. MOORE, replying to Dr. ABBOTT, said that in these cases there is absolutely no hope without the operation, and on the other hand, while it must be admitted that there is a large percentage of recurrence, almost every surgeon of experience could cite cases in which there has been no recurrence. He had one case in which he amputated a limb for a recurring sarcoma over ten years ago, and the patient was still alive and well. Another point in favor of the operation is that with the present aseptic bloodless operations, the mortality rate is no longer very great. After a time, when the mortality rate from the operation has been reduced to the minimum, and a sufficient number of well-authenticated cases of permanent cures have been placed upon record, results will be much better than now, because we can operate the cases earlier.

The second specimen consisted of a pair of ovaries, tubes, and a uterus, which he had removed at the Northwestern Hospital that morning. The patient, a widow, thirty-seven years of age, had become a chronic invalid from constant pain and menorrhagia. She had been under the care of a very competent gynæcologist in Columbus, Ohio, who had done everything that could be done for her, short of a radical operation. He learned that three years ago he had advised her to have the ovaries and tubes removed, and that within the past year he had advised her that it would be necessary to remove the uterus also, in order to relieve her of her symptoms. For various reasons, which he would not take the time to mention, he had decided to operate by the abdominal route. He first dilated the cervix and curetted the uterus thoroughly with a sharp curette, thinking that he might conclude to leave it. It was a point of interest that notwithstanding this thorough curettement with a sharp curette (and those who were present would bear witness that it was thorough) the lining of the uterus was now smooth and intact. He did not believe that it was possible to remove the mucous lining with a curette, surely not with any justifiable amount of pressure. One ovary was completely disorganized, and the other one cystic. Both tubes were firmly bound down and were distended with liquid contents. Upon opening the abdomen, he had found that the uterus was small and comparatively free and he concluded that the condition of the ovaries and tubes was sufficient to account for all of the symptoms and that their removal would afford relief.

What induced him finally to remove the uterus was that after removing the ovaries and tubes, he found, as could be seen, a solid mass in either cornua. The patient had stated repeatedly that she would rather take whatever additional risks there might be and have everything removed that might possibly be a source of future suffering. Fearing that these masses might cause some symptoms, he removed the organ.

Upon cutting through the fundus, he found, as the specimen showed, that they consisted simply of thickened and hardened uterine tissue which would probably have disappeared after the removal of the ovaries. He had thought that the specimen would be of interest as bearing upon that moot point as to whether the uterus should be removed in all these cases, or not. He was satisfied that these masses were harmless, but whether the endometrium would have caused trouble or not, was another question. He candidly believed that the only objection to the removal of this uterus was the additional five minutes required to complete the operation which was certainly no very important matter.

Dr. ABBOTT said that he could not but feel that a woman was better off without the uterus in such a case, and that the additional risk of the operation was very trivial.

The Annual Report of the Secretary-Treasurer was read and adopted.

Dr. ADDISON T. FOSTER, of Chicago, and Dr. CHAS. C. OLIVER, of Philadelphia, were elected to honorary membership.

The Annuel Election of Officers and Committees resulted as follows:

For President, Dr. J. W. CHAMBERLIN, of St. Paul.

For Vice-President, Dr. C. G. WESTON, of Minneapolis.

For Secretary-Treasurer, Dr. R. O. BEARD, of Minneapolis.

For Executive Committee, Dr. A. J. GILLETTE and J. L. ROTHROCK, of St. Paul, and Dr. L. A. NIPPERT, of Minneapolis.

For Governing Board, Drs. H. M. BRACKEN, F. ALLPORT and J. W. BELL, of Minneapolis, and Drs. A. B. ANCKER and TALBOT JONES, of St. Paul.

BOOK NOTICES.

MANUAL OF MEDICAL JURISPRUDENCE. By Alfred Swaine Taylor, M. D., F. R. S. Revised and Edited by Thomas Stevenson, M. D., Lond. Twelfth American Edition, with Citations and Additions from the Twelfth English Edition by Clark Bell, Esq., LL. D, President of the American International Medico Legal Congress of 1890; etc. New York and Phila: Lea Brothers & Co. 1897. [Price, $4.50].

This work is one of the well known classics in medical literature and always holds a high place in regard of the profession. The present edition, like its predecessor has been edited by Clark Bell, who is perhaps the best known medical jurist in the United States. The advantage of an American author for an English work on medico-legal matters is evident from the well known difference in the laws and legal procedures on the two sides of the water.

A description of a standard work like Taylor's Jurisprudence would be superfluous. Although published in one volume it contains an immense amount of material and no subject has been curtailed or abridged to bring down the size of the book. It has no superior as an authority in England and the notes of the American editor make it equally valuable for readers on this side of the water.

MISCELLANY.

NOVEMBER MAGAZINES.

The Review of Reviews.—Mr. Carl Snyder's "From the Lake to the Sea" is of great interest to everyone interested in the development of the West, and he shows so plainly the possibility of cheap water communication from the Rocky Mountains to the Atlantic that one wonders why the national government does not take hold of the project. The timeliness of the character of this magazine is well shown in its other leading articles,—"A Character Sketch of Henry George," "The Situation in Spain," "Personal Notes on Canovas," "Free Public Organ Recitals," and "The Bayreuth Plays." Such articles, with the magazines usual departments, which are also full of the latest questions of the day, make this monthly almost indispensable to every reading man.

Harper's Magazine.—Richard Harding Davis has the true magazine touch, and he is at his best in such an article as "With the Greek Soldiers," which gives a view of war, and especially of the late war between Greece and Turkey, such as one seldom finds. It is a truly delightful article. Carl Schurz contributes one of those masterly sketches which have served to make his own reputation as a great historical writer. In his sketch of Webster, he traces the causes that made his character, and those that marred it; and it is interesting to observe how such causes, especially the latter, are still at work making the characters of our public men.

This sketch will be at once ranked with the author's sketch of Mr. Lincoln, which is generally acknowledged to be the best ever written upon this great name.

"The New Japan" and "The Century's Progress in Biology" are articles also of very great interest.

The Atlantic.—As one reads its table of contents, he wonders if *The Atlantic* ever showed a better one in the forty years, just closed; and one cannot but feel that another brilliant period has opened for this magazine.

In "Forty Years of Bacon-Shakespeare Folly" Prof. John Fiske utterly demolishes the whole mass of argument and evidence produced by a prolific lot of writers, and he does it so completely and so easily that one wonders how anybody can ever again set up the claim that Bacon wrote Shakespeare. Hamilton Wright Mabie is no less interesting in his contribution, "The Life of Tennyson." E. L. Godkin writes of "Peculiarities of American Municipal Government," as only E. L. Godkin sees them. As his reader is made to see them in the same light, one naturally wonders, how long such peculiarities can continue. "The Frigate Constitution" is an interesting account of a vessel very dear to Americans, and we are glad to have so competent a writer as Mr. Ira N. Hollis revive the old boat's memories. Other articles in this issue are perhaps quite as interesting as those mentioned, and the whole list shows why this magazine has, for forty years, held first rank with the best periodicals published in the world.

The Cosmopolitan.—Every issue of the *Cosmopolitan* seems to mark a forward step, and to give the magazine a still higher rank in our best periodical literature. No better articles, in treatment or in title, appear in any magazine than the following from this month's issue of the *Cosmopolitan*: "Beauty and Charm in India" (the last of Julian Hawthorne's series), "The Castle of the Thane at Cawdar," "A Glance at the Dark Arts." With illustrations unsurpassed, such articles as the above easily account for the enormous circulation of this periodical.

Literature is the name of a new four dollar periodical to be published in America by Messrs. Harper & Brothers, and in England by the *London Times*. The leading article deals with "Author and Critic;" a poem, "White Horses," is contributed by Rudyard Kipling; and Augustine Birrell writes a paper entitled, "Among My Books." The reviews include many of the most conspicuous works in the various departments of letters recently published in England, on the continent of Europe, and in America, among them "Tennyson's Life," by Hallam Tennyson; Mrs. Oliphant's history of "W. Blackwood and His Sons," Dr. Weir Mitchell's "Hugh Wynne," Miss Mary E. Wilkin's "Jerome, a Poor Man," and Henry James's "What Maisie Knew." Other important features of the periodical are notes on current literary events, a list of the chief new books brought out in Europe and in this country, and a carefully prepared bibliography, the subject in the first issue being "The Battle of Trafalgar."

NOTES.

SOME METHODS IN THE TREATMENT OF NASAL TROUBLES.

By J. C. Montgomery, M. D.

Charlotte, N. C.

In no department has there been greater improvement than in the treatment of nose and throat diseases. The evolution of modern methods has been slow and labored, but persistent and successful.

Diseases of the nose and throat are more numerous than at first thought we might imagine. There is a longer list of them, and a longer train of evil effects than is likely to be recognized by one who has not carefully considered this matter. Things we see the oftenest impress us the least. We give more attention to the infrequent diseases than to those we are called often to treat. Common every day conditions lose their terror, however bad they may have seemed, or really were. These diseases are important because they are numerous and so far reaching in their effects.

The opprobrium of our profession is in not curing common ailments—those little ills which, in the aggregate, cause greatest distress—not the rare, infrequent, obscure conditions. There are never two noses alike any more than there are two faces alike; it requires the exercise of good judgment and a moderate degree of skill often to determine pathological from physiological conditions.

Cultivated common sense is never out of place when called in consultation to a case of ordinary nasal catarrh. More frequent than any other disease, more widely distributed and more destructive to usefulness and happiness is the *so-called* disease known as catarrh. Too little attention has been given to the cause of this trouble. It may be safely said that within the past ten years many a septal spur and many a turbinated body has fallen a victim to the irritable temper of a dyspeptic and the injudicious specialism of the intranasal operation.

General nervous irritability, dyspepsia, gout, rheumatism and melancholia are all efficient causes of nasal symptoms, but it is much more common to see these remote causes combined with abnormal local conditions than it is to see them the sole cause. The practical point is that the ability and common sense of the rhinologist must be used in the differentiation of one cause from the other, assigning to each its proper significance and acting accordingly.

We are all familiar with the symptoms of a patient with nasal troubles, so the principal desire is to relieve the sufferer. Mild medicines used often will serve you far better than harsh and heroic treatment at longer intervals.

In the treatment of this trouble I have found very little satisfaction from constitutional remedies, other than to place the system in the best possible condition. By far the most satisfactory and reliable treatment will be found in local applications.

The antiseptic preparations now seeking eminence and favoritism at the hands of the profession are many. The preparation that has given me such uniform, excellent and lasting results is Glyco-Thymoline (Kress). It is a most excellent mixture, of a beautiful wine color, alkaline in reaction, slightly pungent and very pleasant to take. Its therapeutic virtues are best shown in nasal and pharyngeal troubles, though I am now using it with marked benefit in a case of chronic cystitis of ten months' standing. I had used the various remedies recommended, such as boric acid, sulphate of zinc, etc., with scarcely any improvement; but since I have been using Glyco-Thymoline I see marked improvement in every way, particularly in less frequent urination, and with more ease, with also considerable improvement in general health.

The Bermingham Nasal Douche is especially recommended as the best means of administration. By this there is gained at the same time the effect of a nasal spray and a pharyngeal gargle. This instrument is about three inches long, made of glass, and has at its middle point on top a small funnel which is used in filling, and also acts as a valve, controlling the amount of fluid flowing back through the nose and operates by the patient's finger while taking the douche. The point is blunt and fits tightly into the nostril.

Case I. W. C. W., male, age 28 years, medium size, dark complexion, family history good; had a long protracted spell of typhoid fever two years ago. Eight months after recovery he states he began to have trouble with his left nostril, in the posterior nares there was a constant itching, with a dark and rather offensive discharge. Several months later the same trouble developed in the right nostril. The nasal passages became covered with thick crusts, breathing through the nose almost impossible. The left tonsil was enlarged and to some extent inflamed, his palate elongated and congested. There was an occasional slight hemorrhage from left nostril.

I put this patient on Glyco-Thymoline daily, diluted. I used the preparation at my office first with large atomizer, giving the patient a Bermingham Nasal Douche to use himself frequently at home and at his place of business. The Glyco-Thymoline relieved very quickly the constant itching sensation in the nares. I also gave him one application of Glyco-Thymoline to the throat daily. All the unpleasant symptoms are fast disappearing, there is scarcely any trouble in his breathing, crusts have almost ceased to form, no longer troubled with hemorrhage, general appearance much improved. The patient has now been under treatment five weeks. I confidently expect that within a few weeks he will be entirely relieved of his sore affliction.

Case II. Miss J., school teacher, complained of inability to breathe through the nose, a constant dropping of mucus in her throat, and a tendency to easily catch "cold." These attacks came on so frequently as to seriously interfere with her teaching, and unless relief was obtained she would be compelled to give up her position. On examination the turbinates, together with the pharyngeal and faucial tonsils, were found to be enormously hypertrophied and covered with a thick, tenaceous mucus that excited nausea and vomiting on attempts to clear the throat. A 20 per cent. solution of Glyco-Thymoline was prescribed to be used in conjunction with the Bermingham Douche every four hours. Nasal breathing and general improvement soon followed.

Case III. Young man, 24 years of age, fine physique, family history good. The entire nose much thickened and enlarged, and the upper lip covered with superficial excoriations apparently caused by nasal discharge. A muco-purulent discharge into the pharynx has been present for some time. Constant pain in left frontal region. The real condition are fissures in the nostril at the junction of the skin and mucous membrane, and ulceration on the nasal septum, occurring in a case of purulent rhinitis. Through these abrasions in the skin and mucous membrane sepsis occurs, and the result we have a cellular inflammation, which is marked in this case. It is impossible for me to wash out the nostrils without the use of cocaine, consequently I have been using a two per cent. spray solution, following this with a weak solution of peroxide of hydrogen. I then dry the nostrils with absorbent cotton, and apply a 30-grain solution of nitrate of silver to all the ulcerations and fissures. After the silver application I then fill the nostrils with Glyco-Thymoline. I perform this treatment every day and expect a permanent cure within a week.

In conclusion, let me say that Glyco-Thymoline is a preparation in which we can place strict reliance. By its continued use you will get excellent results in the treatment of mucous membrane affections.—*The Charlotte Medical Journal.*

SIR JAMES GRANT, M. D., EXPRESSES A MOST FAVORABLE OPINION OF TAKA-DIASTASE.

In a recent letter, Sir James Grant, of Ottawa, Canada, late physician to H. R. H. Princess Louise, reports his experience with Taka-Diastase in the following language: "I consider Taka-Diastase a powerful solvent of material which has undergone only partial digestion as a result of defective gastric action. The intense hurry of everyday life is such, at the present time, that the gastric functions are more than commonly subjected to abnormal influences. Under such circumstances I have closely observed the action of Taka-Diastase and the remarkable manner in which it aids digestion without taxing the system in the slightest degree. I have recommended it in Canada and England with great pleasure and satisfaction, and I predict for it a wide use, owing to the fact that it serves as a remedial agent not previously at the command of the medical profession."

EUCALYPTOL.

Drs. Doom & Eidson, Emporia, Kas.: We use with atomizer, ten to twenty-five per cent of "Sander & Sons' Eucalypti Extract, Eucalyptol," in purulent otorrhœa, follicular pharyngitis and in all forms of surgical dressings with perfect satisfaction. We look upon it as one of our most useful remedies.

Extract from a letter received from Dr. H. H. Starkloff, St. Louis, Mo., May 10, 1897: "It affords me great pleasure to state that I have used Campho-Phenique, in its liquid and powdered form, very extensively, and it has given me more satisfaction than any other remedy, in all cases of wounds, ulcers and carbuncles."

A HAPPY THOUGHT.

Sept. 25, 1897.

Messrs. John Carle & Sons, New York City. Dear Sirs: I have recently used the Imperial Granum with very gratifying results, being called in consultation, when death seemed imminent, to see a child that could retain nothing whatever on its stomach. I remembered my samples of Imperial Granum and ordered it tried at once, and it was retained. The child has not vomited since, the bowels are quiet, and the patient on the road to recovery. I have also recently used the Imperial Granum in a case of typhoid fever with equally satisfactory results. Yours very truly,

——— ———M. D.

Physicians can obtain samples of this valuable prepared food free, charges prepaid, on application to John Carle & Sons, 153 Water Street, New York City.

At a meeting of the faculty of the Chicago Eye, Ear, Nose & Throat college, held Oct. 1 last, three new professors were added to the faculty, viz.: Drs. H. W. Woodruff, William A. Mann and William H. Weaver. Drs. J. G. Huizinga and Edward M. Webster were elected to full professorships. The faculty deemed this step advisable in order to give the proper care to the increasing clinic and to insure the students the greatest amount of attention.

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ORIGINAL ARTICLES.

LOCAL TREATMENT OF BRONCHIAL AND PULMONARY DISEASES.*

By E. J. Abbott, M. D.,

St. Paul.

With the improvement in methods and apparatus for the treatment of disease, with increased knowledge of pathological conditions, there has been an increased tendency of late years to treat local diseases locally, rather than to treat them all constitutionally, as was done years ago. There was a time when the stomach had to endure a vicarious punishment for all the various ills and faults of other portions of the body. Gradually one by one the various localities have been subjected to local treatment for their respective diseases, with such improvement in results that the number of diseases that are treated locally is every year increasing. Do not understand that in any sense we think to decry the local effect of medicines or drugs that is obtained by their absorption and constitutional effect. We know well that atropine or nitroglycerine will produce a flushing of the skin with an increased supply of blood to it. We know also the pallor of the skin and the perspiration that can be brought about by nauseants. We know the moisture that can be produced on the surface by pilocarpine or jaborandi, but for all that we rely on local treatment of local conditions of the skin, rather than upon constitutional means. We know that alkalies will make the urine bland and non-irritating, but we do not rely upon them to cure a urethritis. We know that substances taken into the stomach may be eliminated to a great extent by the lungs. To this any one who has been in the vicinity of a person who has had a meal of onions can certify. Just as the local treatment is better than the general in the treatment of inflammatory or of irritating conditions of the skin, of the urethra, of the vagina, of the conjunctiva, or of the pharynx, so also can some diseased conditions of the trachea, of the bronchi, and, to a great extent, of the lungs, be more satisfactorily treated by local means than by constitutional ones.

Is it not better if we can relieve an irritation with its accompanying cough, increased secretion and expectoration by means of treatment applied directly to the diseased part, than to give remedies which produce their results mainly by an effect upon the whole system rather than upon the particular parts we wish to influence? Is it not better to apply our remedies locally where they can have their local effect?

Many attempts have been made to medicate the lungs and bronchi by means of sprays, atomization and inhalation, but the amount of medication that can actually come in contact with the diseased surface is extremely small when applied in this way. The larynx, or at least portions of it, are extremely sensitive and easily irritated, and any medication that is strong enough to accomplish much good in the lungs is apt to prove so irritating to the larynx that it will cause cough and pain, while a milder preparation would not carry enough of the drug to the diseased parts to accomplish a sufficient local effect.

Dr. Horace Greene some years ago conceived the idea of treating the trachea and bronchi locally, and experimented and wrote very largely in regard to it. He accomplished a great deal in the treatment of coughs and hoarseness by the direct application of nitrate of silver in strong solutions to the larynx, and he conceived the idea that the same applications could also be applied to the trachea, but up to that time the medical profession had had as great a fear and respect for the trachea as they had for the peritoneum or meninges, and a prominent teacher, in speaking of making applications to the larynx by means of a piece of cotton or sponge probang, says: "Extreme care must be used to see that the sponge is squeezed thoroughly dry, as if a drop or two of the solution should pass through the vocal cords into the treachea it would cause an intense dyspnœa, which would probably be fatal if not relieved by an immediate tracheotomy."

In spite of such statements, Dr. Greene persevered in his attempts, with the result that he created somewhat of a disturbance in the medical profession when he reported to a New York Society, in the fifties, that he had actually made applications to the lining of the trachea by means of a sponge probang. His statements were disputed, and a committee of the Academy of Medicine was appointed to investigate. After prolonged investigation of several months, two reports were brought in, one of which stated that Dr. Greene's statements were true, while the other claimed that any such manipulation as he claimed was utterly impossible. Erickson, of London, wrote on the subject, stating that after thorough investigation he was satisfied, and that, not only upon the living subject, but even upon a cadaver, it was utterly impossible to introduce a probang into the trachea. Subsequently Dr. Greene modified his treatment and introduced the flexible tube into the trachea and injected medicines through it. It is interesting and amusing to us at the present time to read of the incredulity of the profession in regard to this treatment; to read the papers in which he states the names of people and physicians who were present and saw that the tube was actually passed through the larynx, to see the means that were used to demonstrate to these people that the tube was actually in the larynx and trachea and not in the œsophagus; how little pieces of cotton were hung by a thread at the mouth of the tube, so that they would see that they moved back and forth with inspiration and expiration; how a lighted taper was placed in front of the tube so that those present would see it blown out; and not satisfied with this, he held the patient's nose to show that the force of the expiration did not come in that way. Then he cut a hole in a piece of pasteboard to fit accurately over the tube and cover the face of the patient, so that by no possible way could a current of air come from his mouth or nose. The ball of cotton moved with expiration, and some were convinced, while others went away doubtful.

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*Read before the Section of Medicine of the Minnesota State Medical Society, June 17, 1897.

The treatment used in these cases seems to us today rather strong and heroic, and perhaps it was the strength of the solution as much as anything else which deterred others from following in his footsteps. He speaks of injecting a drachm and a half of nitrate of silver solution, forty grains to the ounce, with little immediate inconvenience to the patient, and in many cases the very marked improvement in the cough and in the general condition, on account of the lessened inflammatory condition. This treatment was used in chronic bronchitis and in various stages of tuberculosis. After the death of Horace Greene, in 1866, very little seems to have been done along this line. With the advance in the medication of the throat that followed the introduction and common use of the laryngoscope much was done in the way of improvement in treatment of the larynx, but little or none in that of the trachea and bronchi. Then came the invention and introduction of various mechanical apparatus for the application of vapor, steam and sprays, both hot and cold, to the air passages. The vivid recollection which most of us have of the coughing and choking and disagreeable feeling following the occasional lodgment of a particle of food or drink in the air passages when it should have gone into the œsophagus has left us with the idea that the trachea is extremely sensitive. We at the time do not have the opportunity to investigate and learn that this small body is not in the trachea, but is above the vocal cords in contact with the glosso-epiglottic or the aryteno-epiglottic folds or the inter-arytenoid space, each one of which seems to act as a cough center. If one would only consider, however, the large quantities of mucus and muco-pus which are frequently contained in the air passages, one would at once realize their tolerance and would see that there would be no objection to the introduction of one or two drachms of fluid, if it were not too irritating.

Dr. Joseph Muir, of New York, has invented a syringe such as I now show you which seems to meet all the requirements. The barrel is short and broad so that a short movement of the thumb only is necessary to inject the requisite amount. With the laryngeal mirror one can see very readily the epiglottis and vocal cords, and with the proper curve of the tube of the syringe the injection can readily be made. The only liabilities to mistake are that the injection might be made into the œsophagus instead of the trachea. Although in doing this we would fail to accomplish our object, still no harm would be done. The other error which might bring discomfort is the injection of the fluid on to the larynx instead of into the trachea. In doing this the fluid will come in contact with the cough centers above referred to, and sometimes will produce a coughing and choking which is extremely disagreeable to the patient, but is not productive of anything more than present discomfort. The first or first few applications are more disagreeable to the patient than the later ones, because the irritation of a mirror in the pharynx, as we all know, often causes gagging. If the pharynx is extremely sensitive, especially in persons who are nervous, I often use a little cocaine for the first few applications, but am soon able to discard it, and in the majority of cases I do not use it at all. I have in the past year made more than one thousand applications of this sort to the trachea and bronchi, in cases of tracheitis, acute and chronic bronchitis, bronchiectasis, emphysema and tuberculosis. Among these there have been a very few cases who have had only one or two treatments, and have objected to a repetition of them on account of discomfort in the throat, and who have preferred the slower and older treatment to which they were accustomed. The others, however, have given me almost uniformily good results. I do not mean to be understood that by this means I have cured all my cases of tuberculosis or emphysema, but the cough has been greatly relieved, expectoration much diminished and the fetor of the pus from cavities has been entirely removed. In some cases cavities have been healed, and in some cases hemorrhages have been stopped apparently. In cases where a cavity could be demonstrated in the lungs my practice has been to inject the medicine into the trachea and have the patient immediately lie down upon the side containing the cavity, so that the medication would fall into the cavity by gravitation. In this way we get a local antiseptic effect the same as we would if we made application to abscesses located externally, and, therefore, more easily amenable to treatment. Of course, we cannot make an application strong and penetrating enough to destroy the tubercle bacilli and tubercular deposits in the pulmonary tissue, but if we can relieve the bronchitis which almost invariably accompanies these cases, if we can stop the irritation of the racking cough, we do much to improve the condition of the lungs and to diminish the tendency to the further deposit of tubercles. In some of the cases of acute bronchitis only a very few applications, one or more, have been necessary to accomplish a cure, while cases of chronic bronchitis or bronchiectasis and of tuberculosis have been under treatment a varying length of time from one to six months.

In cases of advanced tuberculosis the treatment has not been all that could be wished, and in some few cases has seemed to be of little or no benefit, but in the majority of cases it has decidedly added to the peace and comfort of the patient, by giving rest from the severe cough, and this, too, without the use of opiates. It is much better for a patient of this sort, or a patient with any chronic disease, if possible, to be treated by local means that are entirely devoid of narcotic effect, if we can bring about the result that otherwise we should be obliged to obtain by the use of narcotics, with the tendency to a constant increase in dosage with the increased tolerance that comes from prolonged use. Besides that, opiates produce their effect, not by diminishing the secretion, not by healing the irritated or inflamed surface, but simply by obtunding the sensibility of the nerve centers with almost universally accompanying interference with other nerve centers as well, and all of the bad results that follow in the wake of the constant use of narcotics.

As far as medication is concerned, I have been in the habit of using as a menstruum either albolene or benzoinol, and in this have dissolved from two to 10 per cent of menthol, five to ten per cent of guiacol, 5 to ten per cent of iodine, terebene, carbolic acid, creasote and cocaine in varying strengths. I have been accustomed to inject half a drachm to a drachm and a half, occasionally repeating it in a short time, but generally make the application every day or every other day. I have injected as much as four drachms at a sitting, but it is more than should be used, as it causes immediate coughing, which is, however, soon relieved by expectorating the superfluous fluid. The patients almost invariably state within a moment or two that they can feel the medication throughout both lungs, showing how quickly it penetrates the whole pulmonary substance.

In cases of acute bronchitis I often use an application that is bland and soothing as possible, i. e., the plain albolene or benzolinol with little or no medication added. In the more chronic cases I find the stronger and more stimulating solutions are more beneficial, but sometimes find, just as we do in the administration of medicines by the ordinary methods, that there is a great difference in patients, and that one with apparently the same condition needs the medication in a much different strength from another. It has been proven that we get a marked degree of absorption into the general system from remedies used in this way, so that in addition to the local effect which is obtained, we have also some constitutional effect as well, and this without having our remedies decomposed or chemically changed by the intestinal secretion. This method of treatment is to a great extent in its infancy. My own experience is that the more I use it the better I like it. While from time to time as new remedies and new methods for the treatment of these diseases have been introduced, I have tried many of them simply to discard them, and have found that none of them bore in full the claims that were made for them, the contrary has been the case with the treatment now under consideration, and the daily use and familiarity with the treatment convinces me daily more and more of its efficacy in the diseases which have been mentioned. I have also found in the treatment of asthma, this method of medication has been of great benefit and has produced excellent result in some cases where the use of medicines administered by the stomach had proven of no avail.

APPENDICITIS.*

By Roscoe N. Jackson,

Faribault, Minn.

"Why don't you and Deacon Jones agree better?" said the minister to Deacon Brown. "Well, parson, I'll tell you how it is. It is all due to the point of view." And that is the attitude of the profession today on appendicitis.

I propose to take it for granted today that we are all familiar with the pathology and diagnosis of appendicitis, and, therefore, shall confine my remarks chiefly to the treatment, as this is the only thing on which we differ. History teaches one fact, and that is, that while dogma is rampant, truth is in hiding; and the truth in regard to appendicitis will never be known until such dogmatic assertions as surgeons of today are making are either proven or give way to a sober "Come, now, let us reason together."

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*Read before the Southern Minnesota Medical Association, August 5, 1897.

It is of little use to look to statistics simply as statistics for a solution of this question, for, although figures will not lie, yet liars will figure, by which I mean to say that if a surgeon loses a case it was because the physician did not let him operate sooner, and if the physician loses a case it was because the surgeon refused to operate, and thereby assume his share of the responsibility. It is impossible for us to believe, for instance, that the mortality from surgical treatment is only two per cent, because whoever makes the claim always hedges by stipulating "in suitable cases," done at the proper time," etc. The physician cannot plead any such extenuation. A death is a death, no matter how late he was called, or how much death-dealing physic the patient had swallowed before his arrival, or how poorly his directions are followed out; and the surgeon never fails to set it down against him. Now these tactics on either side are not fair, and savor of a debating school rather than of scientific research; and yet statistics are really our only way of judging the results of treatment. Therefore, I plead for common honesty in order to settle this question.

A few days ago I received from the publishers the latest work on the practice of medicine by Wood & Fitz, and expected to read the article on appendicitis with a great deal of interest, as Fitz is recognized as certainly one of the best medical authorities in the United States on that subject. But I discovered that the article was written by Wood, and contained fourteen pages of routine talk, abounding in contradictions and antiquated advice that today make the mortality of medical treatment so great that the surgeon has a right to claim the disease. At the end of Wood's article, however, is less than a page by Fitz himself, which substantiates, I am thankful to say, the views I shall give you. A few words, in passing, on pathology. Wood says (quoting Fitz): "For all practical purposes, typhlitis, perityphlitis, typhlitic tumor and perityphlitic abscess mean inflammation of the vermiform appendix; the chief danger of this affection is perforation; perforation, in the great majority of cases, produces a circumscribed suppurative peritonitis, tending to become generalized." If this is to be believed, there is but little left in the way of differential diagnosis, aside from typhlitis stercoralis and suppurative diseases in the female pelvic. He also says that a constant and probably a chief causative factor is constipation, and then says thus: "Appendicitis occurs oftener in males than in females, and especially in healthy youths and young adults." Now, we know that constipation is much less constant in males than females, and is least constant in "healthy youths and young adults," which militates against the idea of constipation being a factor, and agrees with my experience.

It seems to me that this disease is distinctly a catharrhal inflammation, and for these reasons: It is much more prevalent in the catarrhal months than in any others, and those that occur in summer can nearly all be traced to exposure to wet and cold. It occurs at the ages most subject to catarrhal inflammations, and follows exposure that we would expect to lead to catarrh in any part of the body, and is amenable to treatment for catarrh. It seems reasonable, therefore, that instead of saying that constipation is a factor in its causation, we should go back a step and say that the causation of appendicitis is the causation of the constipation, viz., catarrhal inflammation.

Wood says: "The average mortality of appendicitis is stated at about fourteen per cent. The surgical operation attended with the least mortality is that done after the patient has recovered from an acute attack." McBurney advises, wherever possible, not to operate until after the acute attack. These are the cases where it is possible to get the two per cent.

Bull says that the probably correct statistics give a mortality of five or six per cent, from which we may infer that the interval cases are reported, and the operations done at an unfavorable hour are thrown out. Now all surgical operations and their results are susceptible of tabulation, and should be made a matter of record. It is not so easy with medical cases, because many mild cases of appendicitis pass for something else, and only the severe cases, those most certainly known to be appendicitis (of course including all the fatal cases) are reported, thereby giving an unfair rate of statistics against medical treatment. Now listen to Wood's treatment, and see what you think of it:

"The treatment of the individual case of appendicitis is almost always surrounded with great anxiety, on account of the difficulty, in fact, in many cases the impossibility, of determining in the onset of a case whether it should be looked upon as one of fæcal accumulation in the cæcum with associated inflammation of the appendix, or as one of mild catarrhal appendicitis, or whether ulceration or perforation exists. * * * All are in accord in inculcating absolute quiet in bed. * * * At alternate half hours the patient may take an ounce to an ounce and a half of magnesium citrate solution and a half grain of calomel, the calomel being dropped when from seven to ten grains have been taken, even if no action of the bowels has occurred, and the saline being administered hourly, day and night, until a free passage has been obtained, or until the impossibility of so doing is demonstrated. When ulceration, perforation or gangrene is present in an appendicitis, the salines can do no good, and may readily do harm, so that they should not be exhibited. It is, however, impossible in most cases to determine positively when perforation or ulceration occurs, so that it may be considered as rule-of-thumb practice to use the saline in the beginning of an appendicitis, which is not explosive in its type. If, however, the practitioner should believe that there is probably ulceration or gangrene of the appendix, the purgative should be used only if absolutely necessary to overcome demonstrable fæcal retention."

Nothing, to my mind, can be more ridiculous than this straddling on the part of so eminent an authority. It is just such contradictory, nonsensical and brainless advice as this that is productive of our great medical mortality, and gives the surgeon a right to claim the disease as his own. Any man who can stand first on one foot and then on the other, and change position as rapidly as this advice indicates, would seem to be better fitted for a running mate of W. J. Bryan than for counsel at the bedside. For instance, "all are in accord in inculcating absolute quiet in bed," presumably for its effect upon the inflamed bowel. And then he proceeds to club this bowel, "night and day, half hourly, with calomel and physic," until he gets an action, or a dead patient, which latter result he claims to attain in about fourteen per cent. Shades of Alonzo Clark, listen to that! The mildest inference one can draw from such treatment and statistics is that it is "orders to quit." I wish to go on record as opposed most emphatically to this line of treatment.

Contrast this fourteen-page information with the few words which Fitz adds to the article, evidently with the hope of saving it, and the patient.

"Recognizing the impossibility of satisfactorily determining at the onset how an attack of appendicitis is to end, but convinced that the large majority of cases can recover quickly, easily and safely under medical treatment, it seems to me advisable to advocate such treatment as shall favor the predominant tendency of this disease to terminate in resolution.

"From this point of view the essentials are to check peristalsis above the cæcum and to relieve pain. Repeated instances have occurred of the aggravation of the symptoms soon after the administration of laxatives by the mouth, often by an anxious mother who attributes the abdominal pain to the presence in the intestine of indigestible food or retained fæces. All cathartic medicines are, therefore, to be avoided until convalescence is established, and only the blandest liquid diet is to be permitted. If constipation has preceded the attack or the colon is distended with gas, a rectal enema often gives relief, and does not threaten the tearing apart of delicate adhesions whose influence is protective, or risk the perforation of a weakened appendix.

"The relief of pain is best accomplished locally by means of hot or cold application. If these are ineffectual, morphine should be given in such quantity as to keep the patient comfortable. Small doses are usually sufficient for this purpose.

"If resolution is to occur, it is likely to take place by the third or fourth day; hence, when the condition of the patient permits, an operation should be delayed until this time. The surgical treatment of the acute attack is always to be avoided when possible, because it is unnecessary in the majority of cases, and is followed by the risk of a subsequent hernia. If eventually required, it is more safely employed in the absence of acute inflammatory symptoms, and there is afterwards less likelihood of hernia.

"The removal of the appendix for chronic inflammation is to be recommended in those cases in which recurrences are frequent or the tendency to relapse is such as to produce a state of semi-invalidism."

This is all Fitz says in the entire article, and yet to any observing man it is worth tons of the other man's talk. The best thing Wood says, and about the only thing with which I agree, is in regard to opium. He says: "I still believe that opium does good in these cases by controlling pain and restlessness, and also acts antiphlogistically in some unknown way." How a man can say that, and then give the doses of calomel and salts which he advocates on the same page, is beyond my comprehension.

Now as to my own individual method of treating these cases: A certain very small percentage of them are undeniably surgical cases from the outset, and should have the operation "as soon as the diagnosis is made." These are the cases of acute, rapidly developing, fulminating ulcer with perforation. I have only seen two such—both died; and in both a surgeon who was called in refused to operate. The surgeon "didn't have to" operate and endanger his two per cent statistics. I had to attend the cases—both surgical cases, mind you—until they died, and then the surgeons fling up the statistics to me—a beautiful example of the value of statistics. One had perforation nine hours before I saw her.

Eliminating these cases, we have left for our consideration the ordinary case of acute, catarrhal appendicitis, beginning abruptly with severe colicky pains, vomiting, a rise of temperature and the characteristic localized symptoms at McBurney's point. In these cases we expect inflammation, suppuration and an abscess; and the one thing to guard against is the diffusion of this abscess material, producing general peritonitis. Cases left to nature teach us that the adhesions tend to wall off this corner of the abdominal cavity, to receive and hold this abscess, with little, if any, danger to the patient: The one thing to do is to favor the formation of this pocket; the one thing not to do is anything that will hinder the formation of it. Physic, or anything that increases peristaltic action is the worst treatment possible to apply to these cases. Here is the point, and the one point which I insist is necessary in order to get statistics that equal or exceed the surgical treatment. Morphine at once, to the point of quieting pain and peristaltic action, and small doses are usually all that is necessary after the initial dose. Hot applications promote the formation of the lymph wall, and for that reason are much better than cold. There is one other drug which meets three indications. Salicylate of soda cures catarrhal inflammation, reduces fever, and is at the same time an intestinal antiseptic; by this threefold action it meets all the indications for treatment, except pain.

It is my habit at the first visit to call for half a glass of water, put into it one grain of morphine, about two drachms of salicylate of soda, possibly a little aconite, and give a teaspoonful every hour. Each day I reduced the morphine as much as permissible, but the salicylate of soda is persisted in throughout the entire case. All surgeons that I have talked with tell me that when called to a case of appendicitis, their treatment, (and they all treat them medicinally at first, have to do it), is physic and calomel. This treatment given to an ordinary case of catarrhal appendicitis is very apt to make of it a surgical case, or one of general peritonitis, for the simple reason that constant peristalsis defeats the formation of the lymph wall. Surgeons all declaim against morphine, and give as little as possible, saying it "masks symptoms," whatever that may mean. It certainly quiets the patient; it should not narcotize. It dilates arterioles, it diminishes internal congestion and equalizes circulation, through its effect upon the vaso-motor system. I never saw a patient with a tender McBurney point that was not tender enough after the administration of morphine to tell you where he was sore; and after getting the anodyne effects of morphine you can palpate and locate your local trouble with much more certainty than before. Morphine, instead of being an enemy to the diagnostician, is his friend. Morphine is also good practice for any acute mucous inflammation.

Out of a large number of cases I submit a few of the worst ones, illustrative of this treatment:

Annie K., age 9. At picnic, June 28, 1890, fell in the lake and wore her wet clothes till night. June 30 found an appendicitis; gave above treatment, and ordered quiet in bed, and to report the following morning. I was called July 4, six days later; patient had felt so much better that July 1, 2 and 3, she had walked two miles each way to and from school. Found an iliac abscess as large as two fists. Parents refused an operation, and the abscess discharged July 19th per rectum, over a pint of gangrenous smelling pus and blood. No subsequent symptoms, no recurrence.

Peter O'C., age 8 or 9. August 4, 1892. Large abscess formed and discharged per rectum seventeen days later. No recurrence.

Jas. M.; married, age 35. Feb. 7, 1890. Intense colicky pain, which another doctor had wrestled with for two days, a la orthodox method, physic, which would vomit but not physic, and nearly tore him open with pain at each effort. No morphine for fear of "masking symptoms." Almost in collapse from the disease plus the treatment. Hypodermics soon eased him, and I was then able to palpate (he was thin walled) an elongated appendix large as a finger. Ended in resolution and absorption and case discharged Feb. 26. March 1 he moved over a mile into another house and had a relapse similar in character and results from March 2 to 19. I saw him a few days ago, and he has never had a symptom since.

Franz S., age 24. Farm hand. Sept. 29, 94. Lived out nine miles, and only visited him once and left medicine enough to last several days. Instead of sending in he came in a few days later to know when he could go to work. He felt very well, but had a circumscribed abscess large as my fist. Contrary to my orders to keep quiet until the abscess broke, he went to cutting corn, and the abscess broke and discharged per rectum in the corn field. No recurrence.

Not to prolong this, I will simply say, that out of nearly one hundred cases, probably a dozen have ended by abscess—the rest have ended by resolution, with the exception of the two fatal cases already mentioned. These are the only fatal cases I have had. I have had one recurrent case. Those ending in resolution recover in a few days, and are in perfect comfort after the morphine and salicylate of soda are given. The last case I had, about three weeks ago, was a man about 36 years old, who rode in fourteen miles on the third day of sickness, and rode back seven miles with his induration, fever and pain. I saw him once two days later, and he went home in less than a week.

I have treated appendicitis by salicylate of soda and morphine for fourteen years. I have as much confidence in it as in any treatment of any disease. Five years ago in a paper before the State Society I advocated this treatment. Three years ago Beverly Robinson, in the Medical Record, said that, inasmuch as he considered the cases catarrhal or rheumatic in origin, it had occurred to him that salicylate of soda was indicated, and he had been giving it for some time, with most gratifying results. I have tried the saline treatment, never the calomel, but do not like it. If begun early and given heroically for three or four days, in spite of your patient's prayers, you may abort a case. If not, you certainly favor perforation, and invite general peritonitis and disaster. My dozen cases of abscess treated by salines, unless aborted, would certainly have brought my mortality up to Wood's.

I know of no investigations on the subject, but it has seemed to me that salicylate of soda inhibits the activity of the pus producing forces (probably antiseptically), and tends to prevent necrosis of tissue. Be that as it may, I feel sure enough of the action of the morphine and salicylate of soda treatment of appendicitis to recommend it to you with the greatest confidence.

THE PRESENT STATE OF OUR KNOWLEDGE OF PUERPERAL ECLAMPSIA.*

By J. L. Rothrock, M. D.

St. Paul.

Probably no condition which the physician is called upon to treat is attended with so much anxiety as puerperal eclampsia, especially when he is suddenly brought face to face with it, when caring for with the usual concern, a case of supposed normal confinement.

At this time the prompt recognition of the impending danger, and the ability to deal with it decisively, will go far towards determining the ultimate fate of the patient, for all authorities unite in testifying that the danger increases in proportion to the number of convulsive seizures.

Puerperal eclampsia, according to Vinay, occurs once in about every 250 cases of confinement, and the average mortality under ordinary methods of treatment is at least 25 per cent.

In reviewing the literature one is impressed with the confused state of the pathology of this affection, as set forth in the average text-book, and perhaps no other disease has been productive of as much speculation, and has called forth as many theories, as have been advanced in explanation of eclampsia; and yet up to the present time not one of the many has proved entirely satisfactory.

Before the discovery of albuminuria in eclamptic patients, puerperal eclampsia was regarded simply as a neurosis following the marked effect which pregnancy had on the nervous system. From the fact that albuminuria was at that time synonomous with nephritis, Levers and Simpson concluded that the convulsive seizures were uræmic, and that the phenomena of eclampsia were identical with those of uræmia accompanying nephritis. The close similarity between uræmia and eclampsia has called forth theories in explanation of the phenomena in the main identical.

As early as this, it had been observed that there was a diminution of the urea in the urine of an eclamptic patient, and not being able to find it in the blood, Frerichs concluded that it was split up into its component parts, one of which was carbonate of ammonium. Being able to produce convulsions in animals by the intravenous injection of this salt, he concluded that it was the cause of the convulsions. From the fact, however, that this salt cannot be found free in the blood of eclamptic patients, this theory fails to hold.

Traube and Rosenstein sought the explanation of the eclamptic seizures in œdema of the brain due to hydræmia, which is present in some cases of pregnancy, and increased arterial pressure occasioned by labor pains. Observation has shown, however, that the assumed hydræmia is not always present in pregnancy, and that eclamptic seizures may occur in the absence of labor pains.

The theory of Halbertsma that stasis of the urine from pressure on the ureters was the cause likewise fails to explain the convulsive siezures, for they never occur in case of large abdominal tumors, even though the ureters are often widely distended.

The theory of Stumpf that it is due to acetonuria is no more tenable, for acetone is not always found in the urine of eclamptics, and on the other hand it may be present in pregnancy without the occurrence of eclampsia.

The claims of Gerdes that he had discovered a bacillus which was responsible for eclampsia, has been shown by Hofmeister and others to be nothing more than the well known proteus vulgaris.

Within the last decade a new impetus has been given to the study of eclampsia by Bouchard, inaugurated by his memorable work on auto intoxication. He found that the urine excreted by healthy individuals was extremely toxic when injected intravenously into lower animals. He further found in experiments that the urine of eclamptic patients was less toxic than normal. He therefore concluded that in health there were constantly being eliminated from the body through the kidneys poisonous principles.

Laulanie and Chambrelent, following this line of thought, conducted a series of experiments on the urine of pregnant women, and found that it was less poisonous than normal, and concluded that towards the end of pregnancy there must be stored up in the body more or less toxic substances.

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*Read before the Ramsey County Medical Society, September 27, 1897.

Chambrelent, working under the direction of Tarnier, sought to prove his conclusions by examination of the blood, and in 1892 performed a series of experiments on the blood of eclamptic women and published the following conclusions:

(1) Pregnancy tends to the retention of poisons in the body, for the urine of the pregnant woman is less poisonous than normal.

(2) In eclampsia the elimination of physiological poisons is hindered, and the urine is less poisonous than normal. It is also less poisonous than the nrine of normally pregnant women.

(3) The blood serum of the eclamptic is considerably more poisonous than normal, and its toxicity is in direct proportion to that of the urine.

Ludwig and Savor, from experimental studies on the pathogenesis of eclampsia, were able to confirm in the main the results of Chambrelent. The toxæmic theory of eclampsia is now quite generally accepted by most authorities, but we are still as much in doubt as to the origin and nature of the poisons as we were years ago. It is believed to be a toxine of alkaloidal nature which has a specific action on the nerve centres. Several efforts have been made to isolote from the urine and blood serum of eclamptics toxines which produce the attacks.

Massin believed it to be due to carbamic acid, a product of intermediate metabolism which may be derived from the blood. In support of this view Ludwig and Savor found that intravenous injection of this substance in lower animals produced eclamptic phenomena and likewise lesions of a similar nature to those found in eclampsia.

Poehl, on the other hand, thought that an increase of leucomaines in the blood was the cause of the seizures, for he noted that during the attack the leucomaines were markedly increased in the urine and diminished rapidly immediately afterwards. Landois believed that creatinin was the poison responsible for the eclamptic phenomena, while Feltz and Ritter, who worked chiefly on uræmia, believed that the poison was inorganic, a combination of potash salts. Is there a specific poison necessary for the production of eclampsia, or, as the advocates of the retention theory hold, is it an auto-intoxication due to one or many poisons which have their origin in impaired metabolic function of the liver together with impaired eliminative function of the kidney? This is a problem which still awaits a solution.

As regards the origin of the poison still less is known. It is by some believed to have its origin in the fœtus and placenta, but the commonly accepted view is that the poison is of maternal origin from impaired metabolism, together with retention from impaired eliminative capacity of the kidneys.

The pathological changes found in those dead of eclampsia are not characteristic, though Schmorl, from a careful examination of seventeen cases, found constantly present lesions of the liver, which he designated as hemorrhagic and anæmic necrosis. He further found in the tissues surrounding these lesions thromboses, which he interpreted as the primary lesions, and thought they were due to coagulating substance peculiar to the blood of eclamptics, probably fibrin ferment. He also found lesions of a similar nature in the brain, lungs, pancreas and kidneys.

Experimental pathology has taught us that the liver in health is very actively engaged in destroying poisons which are produced by the metabolic changes in the process of nutrition. If, now, its function becomes impaired, such poisons must accumulate. Likewise if the function of the kidney becomes impaired, diminution in elimination takes place. One thing seems certain, that whatever the nature or source of the poison, the kidneys constitute the chief channel by which it is eliminated. The lesions of both the liver and kidneys are of such nature as to suggest that the immediate cause of impaired function lies in the direct injurious action of the poison on the cells.

Although all efforts to discover the source in some specific bacteria have failed, and that view has been rejected by most authorities, it is not without the range of possibility that such may be the origin of the poison.

If, on the other hand, it shall transpire that those holding to the metabolic origin of the poison are correct, perfected chemistry and experimental pathology of the future will determine.

With regard to the albuminuria of eclampsia the trend of opinion is to the view that it is secondary, following the direct action of the poison on the renal epithelial cells, in the effort at elimination.

Its almost universal presence in the eclamptic renders it a sign of some importance. Olshausen found it present in 98 per cent. of 200 observed cases, and Zweifel never missed it in a continuous series of 129 cases. While we no longer believe it is the cause of eclampsia, it is difficult to subscribe to the statement made in a recent very prominent text-book that "the clinical importance of the presence of serum albumen in the urine in pregnancy has been greatly exagerated, and a closer study of the excretions has demonstrated its very limited significance."

The most delicate tests have shown that in all cases of pregnancy, albumen is present in but from 2 to 5 per cent. If, now, eclampsia occurs in one of every 250 cases of confinement, and 98 per cent. of eclamptics have albuminuria, is it not a symptom worthy of heed, even though only one in five or ten cases of albuminuria subsequently develops eclampsia?

Again, who can tell how many more of the ten cases showing albumen in the urine, have narrow ly escaped eclampsia, perhaps solely by the treatment directed to the relief of the albuminuria after it was discovered. It would, therefore, seem to constitute a most important diagnostic symptom, a danger signal which should not be passed unheeded.

As a rule in eclampsia the urine shows simply albumen with at most a few degenerated epithelial cells and perhaps a few hyaline casts.

In case pregnancy has overtaken a chronic nephritis, of course a variety of casts, granular and fatty, may be present.

What, then, is the relation of eclampsia to nephritis?

As a rule the lesions found in the kidney do not constitute a nephritis in the sense usually understood by that term. There is usually present cloudy swelling or degeneration of the renal epithelial cells secondary to the lesions above described; but the kidney is seldom impaired beyond the possibility of complete restoration. It is stated that only about one eighth of eclamptics subsequently develop nephritis, the albumen disappearing from the urine in from a few weeks to a few months after the attack, depending largely on the hygienic conditions which surround the patient. In these cases the kidney involvement and albuminuria must be regarded in the same light as that frequently occurring in acute infectious diseases.

Supposing, now, eclampsia overtakes a patient with a preëxisting nephritis, what will be the consequences?

At first thought one would reasonably infer bad, because of the serious strain to be thrown on already impaired kidneys. Clinical experience, however, does not bear out this view.

While a patient with nephritis may and does sometimes have eclampsia, it is by no means the invariable rule as was formerly believed, and not a few cases are on record where a patient with pronounced nephritis has passed through pregnancy and confinement without having succumbed to eclampsia. In these cases, in compensation for the impaired eliminative power of the kidneys, there has been offered in explanation the theory that, from long continued action of the poisons on the nerve centres, they have lost their excitability.

As regards the treatment of eclampsia it should be in the first place prophylactic. With this end in view a careful examination of the urine at short intervals in the latter months of pregnancy, which, together with a careful watch for the first evidence of toxæmia, should be the duty of every one who undertakes the care of these cases. Such observations will often give warning in time to ward off the impending danger. A careful regulation of diet and hygiene with attention to the secretions of the body at this time constitute the most important elements of treatment.

With regard to the treatment of the attack, it is partly empirical for the relief of immediate symptoms and partly based on the theories of the etiology of the disease. Two objects it should be our effort to accomplish. First, to control the convulsions, and, second, to eliminate the poison.

If the attack comes on before or during labor, experience has demonstrated that the uterus should be emptied as soon as possible. For the control of the convulsions numerous drugs have been in common use, most important of which are chloral, morphine and chloroform, the latter being used for the temporary control of the convulsions.

In Europe the chief advocate of morphine is Veit, who by its use has attained most remarkable results. It acts by promoting diaphoresis, as well as by lessening the excitability of the centres. According to him it must be given in successive large doses until the patient is completely narcotized, in order to get its full effect. Olshausen starts with a third of a grain, and has given in the space of four days as much as from 11 to 12 grains. He argues that the lack of success with this drug in the hands of others is due to failure to employ sufficiently large doses.

It is a well known fact that eclampsia seems to fortify the system against drugs. Chloral, which has long enjoyed a reputation, must also be given in heroic doses.

With regard to the use of chloroform, according to Vinay it has no effect whatever on the attacks unless given continuously for from six to eight hours.

The employment of veratrum viride had its origin in Alabama by Dr. Baker many years ago and is of great value in controlling the convulsions. According to Jewett, who has used it extensively, no convulsion will occur while the pulse is kept below sixty beats to the minute. The physiological action of this drug shows that while its employment was originally empirical, it is entirely rational. It has the property of markedly lessening the irritablility of the nerve centres, as well as of lessening the blood pressure by its action on the vaso-motor system, thus storing temporarily some of the poisonous blood in the vessels of the abdominal viscera, besides in full doses it has some action in promoting diaphoresis.

Formerly when venesection was common practice patients were bled for eclampsia. While the practice has fallen completely into disuse, we find in recent times that Kaltenbach recommended it in plethoric cases.

Having attended to the control of the immediate attack, our next duty is to eliminate the poison and that is accomplished through three channels, the bowels, skin and kidneys.

As the kidneys are in a state of almost absolute disability, the other two channels must be relied upon for the elimination of the poison. Briskly acting purgatives, then, come into play, and for this purpose such drugs as croton oil, elaterium, colocynth and the like have long enjoyed a reputation.

For their diaphoretic effect hot baths or hot packs should be mainly relied upon. Pilocarpine, which has been used to some extent for this purpose, has been pretty generally rejected on the ground that it weakens the heart and promotes œdema of the lungs.

Recently attention has been called to a method of treatment which it seems deserves wider notice. It has been for some time the practice in emergency hospitals in the treatment of uræmia to perform venesection, carrying it to the point of tolerance, and then to follow it by the subcutaneous injection of a normal salt solution. Van Rensslaer, in a recent article, calls attention to the success attendant upon this method of treatment in uræmia, and suggests its use in eclampsia. (*American Journal of Obstetrics and Gynæcology*, Feb., 1897.) He states that this method need not be confined to the plethoric, but even a weak pulse and profound coma do not contraindicate its use, for the rapid introduction of the warm salt solution following venesection counteracts the effects of bleeding, filling the vessels and stimulating the heart.

In 1893 Porak and Bernheim recommended in cases of eclampsia in which the urine was suppressed or scanty the employment of saline solution hypodermatically, and state that the results were entirely satisfactory, aiding in the elimination of the poison by the promotion of diuresis. If, now, a certain portion of the poison charged blood is withdrawn and the remaining blood in the vessels diluted with the salt solution, we should expect a marked and speedy change in the complexion of the case. From a pint to a quart of blood can be safely withdrawn from the veins of an individual of average weight, providing the injection of the salt solution is followed up at once, and any one who has witnessed the marvelous action of its use after hemorrhage, accidental or that occasionally following surgical operations, will have no fear of the obstruction of blood.

I have ventured to call the attention of this Society to this method of the treatment of eclampsia, and feel satisfied that until we know more of the nature of this disease it is likely to come into practice as a part of the recognized general plan of treatment.

The medical profession of Colorado have made the somewhat startling discovery that cases of pulmonary consumption originating within the state are beginning to be observed. The natural conclusion is that the numerous consumptives who have gone to Colorado as a health resort have introduced the disease there and that it has become indigenous.

NOTES ON GONORRHŒA.*

By J. W. Little, M. D.

Minneapolis.

It is not with the idea of presenting anything new upon gonorrhœa that I have chosen the subject, but rather to freshen your memories and awaken more interest in a disease, the importance of which is so little understood by the laity and so neglected by the profession. The reason for such neglect upon the part of the profession is not difficult to understand. If one devotes a considerable time to this branch of medicine, he is likely to soon be surrounded by a very undesirable class of persons who neither appreciate the difficulties encountered or the skill necessary to successfully treat these cases; furthermore they are often unable to adequately recompense their medical adviser for the time and trouble necessary to secure a good result, and few indeed are the medical enthusiasts who care to treat such a disease for the good of humanity alone. Then, too, the reputation gained is not the one desired. To devote the time and labor necessary to perfect oneself in this branch might in some other lines bring honor and profit as well, but after your work to have the reputation of being only a clap doctor is rather discouraging.

These are some of the reasons why the subject is often lightly passed over, and patients put off with as little attention as possible, and made to feel, as the laity always have felt, that gonorrhœa is a trifling affair. Who has not heard the old joke that gonorrhœa is no worse than a bad cold, etc. Experience has taught some of the jesters differently, and with the aid of physicians who are now awake to its many dangers, the people are beginning to appreciate the gravity of the disease, and when they do so the services of the physician who rationally and successfully treats them will be as much appreciated and as well paid for as in other branches of medicine.

Almost all medical men are interested in this disease, the gynæcologist, the oculist, the obstetrican, the surgeon, the general practitioners and the neurologist who has the gonorrhœal hypochondriac to contend with, have each an interest.

It is stated on good authority that from 50 to 90 per cent. of all cases of pyosalpinx are caused by gonorrhœa. Statistics cannot for obvious reasons be exact in such matters. Pus tubes are caused by either septic or specific infection; if the latter is responsible for one half such cases, who can answer how many deaths are caused by it in one year in the United States?

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* Read at the Annual Meeting of the Hennepin County Medical Society, June, 1897.

Our knowledge of the destruction to vision caused by it is more definite.

Dr. R. Ferguson, of Canada, has written an interesting paper on ophthalmia neonatorum, containing some valuable statistics in which he says the reports of the blind asylums of various countries attribute at least 20 per cent. of all cases of blindness to ophthalmia neonatorum, which term De Schweinitz uses synonomously with purulent ophthalmia, blennorrhœa of the conjunctiva and purulent conjunctivitis, and says all severe forms are due to the presence of the gonococcus of Neissen.

Rivere, of Bordeaux, claims this cause is responsible for one third of all the cases of blindness existing on the continent, and has placed in the care of Europe 100,000 victims.

De Schweinitz, of Philadelphia, says: "Ophthalmia neonatorum causes one third of all blind in the United States, and the United States census of 1890 gives 50,411 blind in this country, one-third of this number would give us 16,809 blind in the United States from this cause alone." The census of 1891 shows 3,368 blind in Canada, one for every 1,430 of the population. In Ontario 1,227, one for every 1,720 of the population. If, as is claimed from 20 to 33 of this number are blind from ophthalmia neonatorum, there are in the Dominion from nine to fifteen hundred blind from this disease. Of course the calamity of being blind casts all other considerations aside, and still we cannot help remembering that as a class these blind people are non-producers and must be taken care of at a very great expense to the state.

Beside the two results given above, we have the damage to the kidney, bladder, urethra and summary glands, being a common cause of sterility in the female and lack of fecundating power in the male. These, with many more diseased conditions as peri- and endocarditis, post gonorrhœal arthritis, and damaged nervous systems, go to make up an array of cases the like of which can be equalled by only tuberculosis and syphilis.

With such facts as given above, and with which we are all more or less familiar, the question naturally arises: Is there any treatment more efficient than the one we were taught years ago, the standard treatment as given in the text-books and taught in medical schools? viz: rest, saline cathartics, light diet, alkaline drinks to lessens acidity of urine, and after the acute stage astringent and antiseptic injections. This has been for years the usual treatment, and a very good one it is, could the first remedy, rest, receive the attention it deserves. This we all know is usually impossible to enforce. Most patients cannot leave their employment unless driven to do so, and those who could will not because of the suspicion cast upon them by remaining in bed with no visible cause for so doing. Even could rest with the other means above given be used, it is not I believe the best treatment we can use. A proper irrigating solution ought, I am satisfied, to be used in the acute stage, and the earlier its use is begun the more quickly will the cure be effected. It does not seem rational to suppose that gonococci can be more readily disposed of after they have had time to multiply and burrow into the mucous membrane and deeper tissues. For the past year I have treated my cases with urethral and intravesical injection with so much better results than I have had before by the old method that I feel like recommending it to all who have not tried it.

The method of irrigating the bladder without a catheter has been made popular by such men as Prof. Jules Janet, of Paris, E. R. W. Frank, of Berlin, Brewer, Swinburne and Valentine, of New York. The Valentine apparatus, which I show you here and with which many of you are no doubt familiar is the one I have used for this purpose.

Dr. Valentine claims only:

1. Improvement in apparatus.

2. Simplification of technique, enabling even the least experienced to employ it without difficulty or danger.

The exhibition of the apparatus being in itself all that is necessary by way of explaining its action, I can pass on to the solutions used and the time for their employment. The directions given here are taken from writers on this subject and particularly from Prof. Valentine, of New York.

The irrigator placed at nine feet from the floor gives sufficient hydrostatic pressure to overcome the resistance of the compressor muscle, less force when the pendulous portion of the urethra only is to be irrigated by constriction of this tube.

The table given by Janet and taken from Valentine's article in the *Clinical Recorder* of February, 1896, is as follows:

Permanganate of potash:

First day, first visit: anterior irrigation 1-1000. 9 P. M., anterior 1-4000.

Second day, 8 A. M.: anterior irrigation 1-3000. 7 P. M., 1-4000

Third day, 8 A. M.: intravesical irrigation 1-2000. 7 P. M., intravesical 1-4000.

Fourth day, afternoon: intravesical irrigation 1-2000.

Fifth day, 8 A. M.: intravesical irrigation 1-2000. 7 P. M., intravesical 1-2000.

Sixth day, afternoon: intravesical irrigation 1-2000.

Seventh day, afternoon: intravesical irrigation 1-2000.

Eighth day, afternoon: intravesical irrigation 1-1000.

Ninth day, afternoon: intravesical irrigation 1-1000.

Tenth day, afternoon: anterior irrigation 1-500. Intravesical 1-1000

Other injections such as silver nitrate, boric acid, etc., may be used but permanganate of potash is as a rule the most efficient. My office hours being from 11 to 12 A. M. and 2 to 4 P. M. I have not except on a few occasions given more than one treatment a day, but believe that for the first four or five days two treatments would be better. Valentine says the irrigations are painless; less than one per cent. of patients complain of pain during irrigation. My experience in this respect does not accord with his. While the pain at the time is often not great, almost all, yes I believe all, complain of a distress through them in the region of the bladder and perineum with an almost constant desire to urinate for a period ranging from one to two or three hours. The usual burning on micturition, chordee and discharges are very much lessened, and while all cases are not so quick to respond to the treatment, the great majority of cases seen quite early and when the canal is not already in a damaged condition by reason of previous disease, can be thoroughly and permantly cured in from one to three weeks. Many cases are apparently and may be well even inside of one week, but I never feel sure until a later period and place ten to fourteen days as a reasonable estimate of the time necessary, and think we ought to be well satisfied if a cure can be accomplished in this time. The penis quite often becomes œdematous from the irrigations, but this is of no consequence except the fright which it may give the patient and which can easily be overcome by forewarning them. Valentine says: "In my opinion it is this artificial œdema which, though it be unperceived by the patient, renders the urethral mucosa an inferior culture medium for gonococci, their nutriment thus being vitiated or entirely destroyed, their proliferation is checked. Some failures must be expected, estimated by various writers to be from two to five per cent. In those cases damaged by previous disease other treatment is imperative, but in acute uncomplicated cases irrigations, with a laxative, sandal-wood oil if urination is very frequent and painful, with total abstinence from alcoholic and carbonated drinks are all that is necessary. I have had some trouble with bicycle riders and think that the wheel ought to be given up during the acute stage.

Other and later conditions which arise as a result of failure to cure in the early stages, such as prostatic urethritis and disease of prostate and seminal vesicles, I do not mean to touch upon excepting to say that the rational treatment of these cases requires better equipment and more thought than is given to them as a rule by the general practitioner.

Urethroscopy as a means of diagnosis and treatment is not made sufficient use of; without it many cases cannot be rationally and successfully treated.

From the serious nature of the disease, many points of which I can not even mention in this paper, is it not fair to our patients and to ourselves to better prepare ourselves for this work or advise such patients to go where such treatment can be obtained, rather than to treat the matter lightly and let them drift wherever they may, often falling into the hands of the charlatan whose only thought is the amount of money he can secure from his victim?

THE TREATMENT OF SEVERE FORMS OF CORNEAL ULCERATION.*

By H. McI. Morton, M. S., M. D.

Ophthalmologist and Otologist to St. Barnabas Hospital.

Minneapolis.

Having the pleasure of addressing you, it becomes my object to call your attention to a practical subject in a brief and practical manner. The presentation and discussion of rare types of disease has its value as well as undoubted interest, yet it is of more value to have, and to hold, a clear conception of the proper treatment of conditions which we meet in our daily practice than a necessarily transitory knowledge of a disease with which we have only occasionally, if ever, to deal. No more common disease of the eye exists than ulceration of the cornea, unless it be the simpler conjunctival affections, and this applies particularly to those of us who practise in the windy and dusty Dakotas and Minnesota. Some of the most severe and obstinate forms of corneal ulceration that I have treated have come from the plains of North and South Dakota.

Again, few eye diseases are followed by more unpleasant and serious results.

I shall not indulge in confusing generalities, but proceed at once to a detailed description of the manner in which I have the patient carry out the treatment as well as the method of treatment I adopt myself. I shall briefly report a series of cases, each one typifying a particular form of ulceration of the cornea.

Case I. *Illustrating the treatment of a simple, non complicated ulcer of the cornea.*

Mrs. P., æt. 35. A few days ago while sitting on the porch, she says a fly or some foreign particle struck her in the eye. The eye became injected, more and more painful, and the vision blurred. I found a small area of cloudiness at the inner and upper part of the cornea. The involvement was so slight as to render it uncertain that an ulcer existed. A drop of flourescine was put in the eye, which left a small yellowish-green spot at the point of cloudiness. Thus I had a corneal ulcer. There was no pus, the base of the ulcer being clear and involving only the most superficial layer of the cornea. I directed the patient to apply hot water to the eye at intervals of one hour and for a period of exactly four minutes, by small pieces of clean flannel. I insist that the patient use the water for just four minutes, no more, no less, and at the regular interval of one hour. After the use of the hot water I direct her to dry the eyelids with a cloth, and drop into the eye a pipette half full of boracic acid solution, grains x to water ℥i: Every third application of the very hot fomentations she is to drop in the eye two drops of a solution of sulphate of atropine, one grain to one drachm with the 1-32d of a grain of sulphate of eserine added. I am convinced that the addition of eserine is an advantage. After the use of each hot application a small pad is placed on a small packing of cotton over the eye and tied behind the head by two stringers and drawn moderately tight; this is not to be applied at night, and is to be removed of course at the hourly treatments. One tenth of a grain of calomel is administered hourly until one grain is taken and then followed by a full ounce of the sulphate of magnesia. In most cases the ulcer will yield to this careful and systematic treatment in a few days, and need little attention other than that given by the patient under the physician's direction. My reason for the use of the intensely hot applications is their constricting influence upon the conjunctival vessels, the sedative effect upon the eye, and its mechanical effect in washing débris and microörganisms from the area of the ulcer as well as entire conjunctival sac. I often, in more severe forms of simple ulceration, find great value in dropping one drop of very hot water upon the ulcer. The atropine is of value in placing the iris, which is usually hyperæmic, at rest as well as its direct favorable action upon the diseased cornea, for I believe that atropine greatly hastens resorption of infiltrate, be it round cells or pus, in the cornea or anterior chamber. The eserine I use as a routine measure as it reduces ocular tension, which in itself gives comfort, but furthermore permits of less obstruction to the vascular and lymph currents which carry off the inflammatory débris. Silex and Gisse have presented experimental evidence to prove that hot water should only be applied for very brief periods—from four to six minutes—as after this period it is not beneficial, and my own experience has taught me that there is no greater mistake than long continued hot applications. Even in mild ulceration I think the value of a light pressure bandage demonstrated. The use of the calomel and salts is obviously of value. I have dwelt rather at length over so simple a matter as this case, since this treatment preceeds other measures often, in other forms of ulceration, and also because I desire to insist that success lies in the most careful carrying out of every detail.

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*Read before the North Dakota State Medical Society, May 27, 1897.

Case II. *Illustrating a form of ulceration know as serpiginous, or creeping ulcer, and unattended by any affection of the lids.*

Mr. L., æt. 70. This old man has had "sore eyes" for some weeks. I find an ulcer, not deep, but involving the entire outer part of cornea and extending inward to pupillary area of cornea. The inner edge is lined with a grey, clouded border, that is evidently pus and broken down tissue. The outer edge of the ulcer is clear and in process of healing. This condition is also known as rodent ulcer, and is common to old folks and the debilitated, and very apt to occur in both eyes. It rarely, if ever, perforates into the inner chamber, but has a tendency, while healing at one edge, to progress at the opposite edge until the entire cornea is involved. This is more serious to vision than a small, deep ulcer, for as all ulcers leave scars, the scar of the later is circumscribed, while if a rodent ulcer it is a diffuse opacity over the vision which may modify or even necessitate a complete change in the life of the patient. Thus the indication is to stop the extension of the ulcer over the line of vision, and it is an imperative one. If it involves the entire cornea other than this area, it matters little so far as vision is concerned. Thus it is not always so vital how much of the cornea is involved as what part is involved. To waste time with the use of the treatment as outlined under case I., is but to send a dwarf to conquer a giant.

These cases were much more hopeless than now before the actual cautery was proposed, and the use of the cautery is much more intelligent since the introduction of flourescine. The action of this agent is to stain *all* of the diseased tissue and leave the normal tissue unstained. Thus diseased areas which the eye cannot detect are revealed. I think it wise to use a general anæsthetic in all of these severe cases rather than cocaine, for many good reasons. The cautery is applied to the entire discolored area and the conjunctival sac irrigated every three hours with a 1-10,000 solution of bichloride, between times the eye to be firmly bandaged.

Case III. *Illustrating a rather rare condition known as dendritic, or branch-like ulceration of the cornea.*

Miss Kate O'D., æt. 16. Has had severe pains in the eye for several days. On inspection found an ulcer of the cornea, which has the form of a main branch with two twigs, the edges of the entire ulcer being finely indented or serrated. Hasen Grut has written a monograph upon this disease, which differs from ordinary ulceration by the unusual severity of the pain and by its protracted course, as well as by its peculiar shape. A specific microoörganism is the only explanation of this peculiar, tree-like involvement. I have seen three or four cases in my private practice, which have been reported in the literature of the subject. In these cases the characteristic form was beautifully well defined, but the pain was not more severe and the case not more prolonged than in ordinary ulceration. The lids were not affected in any of the cases. In my article some four years ago I advised the use of aristol dusted upon the base of the ulcer. This was attended by marked benefit, a benefit, however, not obtained by a colleague who tried it in a recent case. I should now apply, however, a different plan. The patient would be directed to follow out the treatment as used in case I., and I would curette the ulcerated area and paint the base of the ulcer with a four per cent. alcoholic solution of bichloride. Since this is a powerful solution to use in the eye, it must be used with great caution. This can be done by wrapping an applicator with a small bit of cotton, so that the end of the applicator, instead of having a bunch of cotton on it the size of a small paint brush, has only enough cotton on it to cover it. This is dipped into the solution and applied to the dendriform ulcer after it is curetted, under chloroform and with the aid of flourescine. These ulcers make a most beautiful clinical picture when mapped out by this solution. This plan of treatment has been of such signal benefit in a class of intractable cases of which I now shall speak that I should, as I have said, apply it in any cases of dendritic ulceration which do not yield to the simpler methods.

Case IV. *Illustrating severe and recurrent ulceration of the cornea, associated with and due to granulated eyelids.*

Mr. A. C., æt. 37. This man brings a history of repeated attacks of sore eyes running over a period of many years. He is run down in health. Both eyes are affected and vision markedly impaired. I find a papillary trachoma of the upper lids in both eyes and in the left eye a large area of the upper part of the cornea ulcerated. Running to the edge of this area we find a thin vascular pannas. The eye is exquisitely sensitive, the lids red, slightly swollen and the skin over the cheek excoriated by the flow of tears. This is a common feature to you all and one of whose detail you should be accurately familiar, and its treatment you should be capable to administer. In this case I proceeded in the following manner. · Under general anæsthesia I thoroughly roll the granulations with Knapp's forceps, and follow this with Prince's ring forceps. If I am not satisfied with the result, a tooth brush in which the bristles have been cut to one-quarter of an inch is taken and the conjunctiva rubbed smooth. Under cocaine anæsthesia I have found this very unsatisfactory, since it occasions so much pain that it is difficult to perform the operation, and its success depends upon its thoroughness. And even when done most carefully under general anæsthesia, I find it often necessary to repeat the expression. If the case is not too unfavorable, I often carry out the treatment as applied to simple ulceration, with application of a solution of 1-100 formaline, made every day in my office. The lids are treated with applications of tannin, gr. xxxx. to C. to the ounce of glycerine. I find tannic acid one of the most satisfactory applications in affections of the conjunctiva, preferring it as a rule to the nitrate of silver and sulphate of copper. These latter in obstinate cases are of value as a change, but I rarely use the copper stick, and think almost as much harm comes from its general and indiscriminate use as does good. If this plan fails me the patient is again anæsthetized, the upper lid everted and scarified with a small bistoury, and powdered boracic acid rubbed in with the thumb thoroughly. The ulcer is mapped out with flourescine and a four per cent. alcoholic solution of bichloride applied as previously described. The use of this solution was suggested to me by Mr. Tweedy, the distinguished ophthalmologist at the Moorfields Hospital, London.

Of course such radical measures apply only to the class of cases spoken of and after other less severe measures have failed. I am fond of using both Knapp's and Prince's forceps, and prefer curetting the ulcer to cauterizing in these cases, since the former method has been attended by better results and less reaction.

Case V. *Illustrating a traumatic ulcer of the cornea with pus (hypopion) in the anterior chamber.*

Mr. J. F. A., æt. about 60, consulted me some few days after he had been struck in the left eye by a small piece of stone while he was at work in a quarry. The eye is much inflamed and presents a small round ulcer of the pupil, filled with a muddy looking pus. The usual methods of treatment were of no avail, and pus appearing in the anterior chamber, I did a Saemish section by entering a cataract knife at one edge of the ulcer and passing it into the anterior chamber to the opposite edge, thus dividing the base of the ulcer. Panophthalmitis set in and the eye was lost. I report this case to show what serious results may follow ulceration of the cornea if the ulcer is infected by the particle causing the injury, and also to state that I now deal differently with these traumatic cases. While the Saemish section is an old procedure, in this class of cases I prefer to curette the ulcer and attempt the absorption of the pus in the anterior chamber by using atropine and hot applications. I have had some most happy results by this method, and I think would have had a better result in this case had I not established a larger communication between the ulcer and hypopion than probably already existed. Paracentisis at the corneal margin and away from the seat of ulceration is oftentimes beneficial.

Case VI. *Illustrating an ulceration of the cornea with prolapse or tendency to prolapse of the iris.*

Mr. J. F., æt. 30. Has an ulcer at the inner and upper part of the cornea near the margin. On the tenth day the iris prolapsed after perforation of the ulcer. I drew out all of the iris I could with the iris forceps and cut it off. The case recovered with fair vision. In these cases, if the ulcer is at the margin, we attempt to contract the iris with eserine, and if the perforation is near the centre of the pupil, we dilate with atropine, thus drawing the iris away from the perforation as much as possible. A pressure bandage and rest are of great use. In cases where we have a fistula remaining in the cornea after perforation, Dr. De Gama Pinto has proposed cutting off a small piece of the conjunctiva and pushing it into the fistula with a probe. This unites and forms a firm cicatrix.

Thus by a series of cases I have endeavored to show how the different phases of this disease may be treated. I have endeavored to present you my individual experience rather than confuse you with a reference to the extensive literature of the subject. If I have told you naught but what you already know, I trust it will at least serve to fix it more firmly in your minds.

504-5-6 Dayton Building,

HOSPITAL AND CLINICAL MEMORANDA.

FIBROID OF THE VAGINA.

On September 23, 1896, I removed a tumor the size of a small lemon from the left lateral wall of the vagina, beneath the mucous membrane. It was situated in the vaginal structures near the uterine neck between the bladder and the rectum, and extended well into the cellular tissues between those organs. The uterus was not involved or connected in any way with the growth. The mucous membrane was closely connected to the growth, and was removed with it. On section the tumor proved to be a fibroid.

The space of one year has now elapsed and no return of the growth has occurred. The rarity of fibroid growths in this region has led to the brief report of this case. CHARLES F. DENNY.

485 Endicott Arcade, St. Paul.

ARE ATHLETES HEALTHY.—The *British Medical Journal* says:

We have very little hesitation in answering this question in the negative. Of course we quite admit that many athletes are extraordinarily heathy fellows, but that does not touch the question. None but strong and healthy men are likely to enter on, or at any rate to persevere in, athletic pursuits, and the question really is not, do some of them remain healthy? but, do they remain as healthy when they devote themselves to the one object of developing muscle as they, the same people would if they led an ordinary outdoor life, eating ordinary food, and taking a reasonable amount of exercise, without any attempt at interfering with their weight or increasing their muscles? The key to the answer lies in the fact that health depends on the integrity of the digestive and assimilative organs, and that perfection of muscle is quite a secondary consideration. Many perfectly healthy men are certainly anything but muscular, while many laborers who do an amount of muscular work which, measured in foot-pounds per day, would astonish some of our cricketers, are far from healthy, and indeed the same is true of many athletes themselves. In the discussions which have taken place the athlete is defined, and has been defined, as the "trained" man. But this training aims merely at developing the muscular strength, often at the expense of serious strain of the more important organs. The natural athlete, the one whose muscular power reaches its maximum with the minimum of training, may suffer but little from the process, but in proportion as a man has to train hard, to restrict his natural appetite, and to undergo severe toil before he can get his muscles into order, so does the probability of injury increase. It is not, however, in what one may call the dietetic training, but the violent and prolonged muscular efforts which modern athleticism demands of its votaries, we had almost said of its victims, that danger to health arises. The wear and tear of the muscular system is considerable, that everyone acknowledges and expects; but the wear and tear of the nervous system is far greater than is at all generally recognized, while the strain of the vascular system is very great indeed, not perhaps entailing immediate danger to the young, but placing those in serious peril who carry on their athletic feats too long in life, or who, in consequence, perhaps, of some intercurrent illness, age too soon. Notwithstanding, then, the army of vigorous and hearty middle-aged, and even elderly men who have survived the ordeal, we cannot shut our eyes to the fact that the record-breaking which is now the aim of every self-respecting athlete, is productive of such an amount of strain, especially to the vascular system, as when often repeated must do harm. The athlete is often healthy, but this is in spite of rather than by virtue of his athleticism.

Northwestern Lancet.

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THERAPEUTICS AS AN ART.

No one can deny that progress in therapeutics has of late years been astonishingly rapid. Not only have there been improvements and additions to all the old lines of treatment with the proper abandonment of many that have been weighed in the balance and found wanting, but the science has been enriched by the discovery of methods entirely new and original, as for example the serum therapy and the administration of ferments and their products. Hand in hand with this has gone the advance of preventive medicine, with additions to the inoculation method which formerly was represented only by vaccination, but is now performed at least in rabies and diphtheria, and probably experimentally in other diseases where the results have not as yet been announced. Therapeutics and preventive medicine must advance together, for there are already some diseases, like diphtheria, where the remedy that is used to cure the sick is also used to protect the well, and others like rabies where it is difficult to say whether prophylaxis or cure is the object of the treatment, since exposure alone is certain and the treatment is aimed to kill the disease if it is there, much as the hunter said he shot his rifle so as to hit the mark if it was a deer and miss it if it was a cow.

With all this development of therapeutics as a science it is lamentable yet inevitable that therapeutics as an art should decline. The therapeutist of today is a man of science, treating a scientifically studied disease with scientific remedies. His predecessor had less science to boast of, but if he was a successful practitioner, one of the great lights whose fame has come down to us, he studied the patient even more than he did the disease, and his successful hits were due more to a knowledge of human nature than to a knowledge of the results of post mortem observations.

The best man of all perhaps is he who combines a knowledge of the science with skill in the art of therapeutics, and no better example of what this is can be found than the one given by T. Lauder Brunton in his last book, which consists of the lectures delivered by him in 1896 at St. Bartholemew's Hospital. Those who know Brunton as a man of science and remember his many and valuable researches would hardly expect to find him revealed as he is by this book, a past master in the art of managing both the disease and the patient.

The lectures are most delightful reading. They are delivered in an easy style, often quite colloquial, and abounding in illustrations most happily chosen. They fairly bristle with clever little points so strikingly put that they must impress themselves upon the minds of the hearers. Underneath is a groundwork of scientific study of the action of remedies, without which their intelligent use is impossible. The highest art in therapeutics is built with its foundation this knowledge of the action of remedies, and a superstructure composed of the results of experience and observation, the whole edifice crowned with that power known by the name of genius, a power that must be inborn and can rarely be acquired.

The pages of this book show the auther's skill in therapeutics not by any boastful accounts of successful cases, but in his casual illustrations of the use of remedies. He tells of his happy hits in a most simple and unassuming way. Called in consultation to an old gentleman who had coughed so continuously as to be almost unconscious, and knowing that the regular attendant had administered all sorts of respiratory sedatives, he came to the conclusion that the cough was due to irritation of the vagus arising in the stomach, and on this theory he proceeded to administer the bicarbonate of soda, upon which the cough promptly stopped. Again he had for a patient an elderly man whose breathing was gradually becoming more and more difficult in an unaccountable way, until at last it became impossible for him to breathe except voluntarily. As soon as he fell asleep he would stop breathing and awake with a great start. Brunton concluded that it was all up with him and was about to give him an injection of morphine to smooth his path to the grave, when it struck him that this was a failure of the respiratory centre and that strychnine might arouse it, so he gave an unknown quantity of strychnine hypodermatically, enough to make the fingers twitch, and the breathing improved at once, the patient soon falling into a quiet sleep and living for more than a year afterwards.

Here is a nice bit of observation that will no doubt give a useful hint to many. He noticed, as others have done, that patients often have very light colored stools where there is no indication that the flow of bile is in any way obstructed. In one of these cases he had the curiosity to have the fæces analyzed and found them to be composed almost entirely of fat, the bile not absent but hidden by the white color. The patient had been taking much milk, and Brunton concluded that the duct of the pancreas had become obstructed so that the fat could not be emulsified. As the patient recovered he was unable to verify the diagnosis, and he admits that he did not know very well how to treat the case.

Perhaps the art of therapeutics is best illustrated by one of the instances given in the book, of a patient who had been recommended by many physicians to stop smoking, until it last he came to one who said: "Oh dear, no, my dear sir, there is no sort of necessity for your stopping smoking at all, smoke as much as you like and any kind of tobacco you like, but I want you to smoke a particular kind of pipe. You must not smoke cigarrettes or cigars, or short pipes of any kind, neither brier wood nor meerschaum, but you must invariably smoke a long churchwarden pipe." The patient went away delighted with this advice, and after a year reported himself much improved, in fact quite well. "But," said he, "doctor, I find I cannot smoke a long churchwarden in the street or anywhere out of doors, so that really the only chance I get to smoke is at night." "Precisely," replied the doctor, who had intended to bring about that very result.

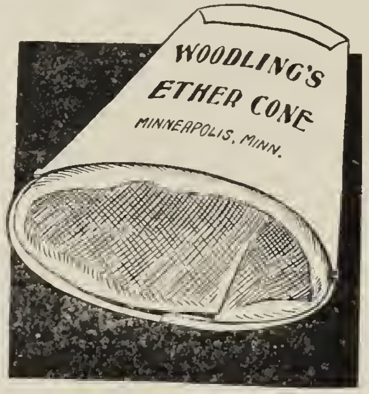
NEW INSTRUMENT.

A NEW ETHER INHALER.

By M. E. Woodling, M. D.

Minneapolis.

Gauze lined, ready for use, clean, convenient; use once and throw away. It consists of a heavy paper cone, and separate gauze lining, with impervious tissue paper between. The cone is folded in around its mouth, so as to more securely hold the lining and also leave a smooth surface to come into contact with the patient's face. The trough formed by this fold, catches any surplus ether, and it is reabsorbed by the lining instead of running out over the face of the patient. These cones are cheaper than cleaning and replacing the lining in any permanent inhaler, besides saving the cost of the latter. A clean new cone for each patient.



Cleanliness is the word among surgeons. The above described ether cone (or inhaler) just being placed upon the market, was devised in accordance with this idea, a clean new cone for each patient, and cheaper than a dirty one. Any permanent inhaler must necessarily become, when used, a filthy, if not a disease laden article, from the breath and mucus from nose, throat and lungs, and oftentimes the contents of the stomach also, thrown into it. Patients of high and low degree spit, cough and vomit into it, and seldom, if ever, is it thoroughly cleaned, because of the difficulty or impossibility of doing so. How disgustingly filthy! Nor is this all. Patients with all manner of diseases, local and constitutional, all breathe through the same inhaler. Who will say that the patients are not sickened more by the filthy inhaler than by the ether? That they are not infected with disease germs from this infected and poisoned inhaler? Who would hold a patient's mouth over a sewer hole and then order him to "breathe full and deep." Yet is not the permanent and well worn inhaler worse than a sewer opening? A few disease germs may float in the air; even light upon the wound during an operation if not guarded against, but how many are drawn directly into the blood through the lungs, from that inhaler? The administration of an anæsthetic is a serious matter and should not be conducted in a routine, haphazard or careless manner, but appreciating the responsibility, the patient should be intelligently watched throughout and not asphyxiated, smothered or poisoned, and the first consideration is a clean cone. With ether, keep the cone well filled with the vapor and then give ether or give air.

From two respected and busy practitioners, two permanent inhalers of different construction set away to be used in the next case, were obtained. They had been in use a number of years. So dirty and disgusting was their appearance that the common expression of those who saw them was "I'd knock the man down who attempted to place that over my face." The microscope revealed them to be "full of bacteria of various forms and sizes." Cultures have not yet been made to determine the specific kind and nature.

These cones may be obtained of the Crolius, Tucker and Allen Company, of Minneapolis.

BOOK NOTICES.

LECTURES ON THE ACTION OF MEDICINES. By T. Lauder Brunton, M. D., D. Sc. (Edin.), LL. D. (Hon. Aberd.), F. R. S. Fellow of the Royal College of Physicians; etc. New York: The Macmillan Company. 1897. [Price, $4,00].

This book, which is made up of the lectures on pharmocology and therapeutics delivered by Dr. Brunton at St. Bartholemew's Hospital during the summer session of 1896, has been so fully commented upon in the editorial columns of this issue that nothing more need be said of it. It is a most interesting and instructive work and it would be well if there were many more books of the same kind.

TRAUMATIC INJURIES OF THE BRAIN. By Charles Phelps, M. D., Surgeon to Bellevue and St. Vincent's Hospitals. Illustrated. New York: D. Appleton and Company. 1897.

The narrow lines within which medical and surgical conditions have been specialized is shown by this book of nearly six hundred pages upon a subject that in the older general works of surgery was disposed of in a few chapters. An experience of five hundred cases of injury to the head, which the author claims, is a sufficient foundation upon which to build even a larger book than this, and no one who looks over the volume will feel that the topic has been given too much space.

The writer deals first with fractures of the skull, and gives the most complete account of their symptomatology and diagnosis that has yet been published. It is interesting to note in passing that he does not consider concussion entitled to recognition as a distinct form of injury to the brain; that is to say, the old concussion which was considered to be a purely functional disturbance. That concussion is to be altogether rejected by the surgeons of the future has been growing more and more evident for some time, until it may now be considered to be quite a certainty.

The chief feature of Dr. Phelps' book is its study of pistol-shot wounds of the head in their medico-legal and surgical relations. This the author has made a subject of special study and experiment, and the extent and scientific character of his researches entitle him to a high place of authority upon this subject.

THE MEDICAL NEWS VISITING LIST FOR 1898. Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and Perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shape book, with pocket, pencil and rubber. Seal Grain Leather, $1.25. Thumb-letter Index, 25 cents extra. Philadelphia and New York: Lea Brothers & Co.

A visiting list is an indispensable convenience for the active practitioner. Its carefully adapted blanks enable him at once to note clinical details of every day work, as well as charges and receipts, and to unburden his memory from what can better be carried on paper. It also furnishes him with a legal record necessary for the collection of delinquent bills. Prominent among the many books of this nature stands the *Medical News* Visiting List. Its blank pages are arranged to classify and record memoranda and engagements of every description occurring in the practice of the physician, surgeon or obstetrician. The work opens with 32 pages of printed data of the most useful sort, including an alphabetical table of diseases with approved remedies, a table of doses, sections on examination of urine, artificial respiration, incompatibles, poisons and antidotes, a diagnostic table of eruptive fevers, and a full-page plate showing at a glance the incisions for ligation of the various arteries, an invaluable guide in such emergencies. The *Medical News* Visiting List is issued in four styles, adapted to any system of records and any method of keeping professional accounts. It is durably and handsomely bound in the size of a wallet for the pocket. When desired a ready reference thumb-letter index is furnished which is peculiar to this list and an economizer of time.

LITERARY NOTE.

Klemperer's Clinical Diagnosis, by Dr. G. Klemperer, Professor at the University of Berlin; first American from the seventh and last German edition; authorized translation by Nathan E. Brill, A. M., M. D., Adjunct Attending Physician, Mt. Sinai Hospital, and Samuel M. Brickner, A. M., M. D., Assistant Gynæcologist, Mt. Sinai Hospital Dispensary, is announced for early publication by The Macmillan Company.

Dr. Klemperer's work on clinical diagnosis is widely known, and all English readers will be rejoiced to find within their reach this very comprehensive but condensed manual. Its chapters deal with the inspection and examination of the patient, the diagnosis of the acute infectious diseases, diseases of the nervous system, digestive diseases, each under its special symptomatology, diseases of the respiratory apparatus, the heart and circulation. Two chapters are devoted to urine analysis and to the disease of the kidneys. The four concluding chapters deal with the disturbances of metabolism, the diseases of the blood, the Röntgen rays as diagnostic aids, and animal and vegetable parasites including such bacteria as are of clinical importance.

No book so complete, short of a text-book of medicine, is before the American medical public. It has passed through seven editions in its original language (German) in as many as years. The German school leads in clinical diagnosis and this little work is an exquisite example of its methods.

NOTES.

FOR GRADUATED MEDICS.

To those practising physicians who desire to add to their store of knowledge by special study of the diseases of the eye, ear, nose and throat, is offered an especially fine post-graduate course at the Chicago Eye, Ear, Nose and Throat College of Chicago. This institution is pleasantly located in the handsome new Trude Building. We cannot speak in terms which too highly commend its worthy faculty and splendid facilities for study and practical operating work. The gentlemen who compose the faculty are men well known for their scientific understanding and treatment of this delicate class of disease, who represent the more advanced methods. The hours of instruction are from 9 A. M. to 6 P. M.

FUNCTIONAL DISEASES OF THE UTERUS AND APPENDAGES.

In the treatment of functional diseases of the uterus and appendages, dioviburnia (Dios) holds a most remarkable curative influence in its marvelous tonic effect on the entire uterine system, and is therefore indicated in all abnormal conditions, whether dysmenorrhœa, amenorrhœa, menorrhagia or any functional wrongs of woman. Aching back, bearing-down abdominal pains, soreness of the lumbar region, is an abnormal condition in which dioviburnia is indicated, and should be administered in tablespoonful doses, three times a day in hot water.

LACTOPHENIN IN THE TREATMENT OF INFLUENZA.

Garzia (*Gazetta degli ospedali e delle cliniche; Centralblatt fuer innere Medicin*) gives from seven to fifteen grains of lactophenin three or four times a day in influenza and its complications. He says it moderates both the fever and the nervous phenomena and shortens the course of the disease. He regards it as far more efficacious than quinine and salicylic acid.—*New York Medical Journal*, Dec. 5, 1896.

Dr. L. DeRudder, Marcus, Wash.: I use "Sander & Sons' Ecalyptol" in surgical cases and deep wounds, with speedy and excellent results; the formation of pus almost immediately ceases, and a healthy granulation succeeds. I prescribe it for internal use in sicknesses of a septic nature, for which I consider it the best specific. Eight to ten drops, with some syrup, every hour.

Notwithstanding the large number of hypophosphites on the market, it is quite difficult to obtain a uniform and reliable syrup. "Robinson's" is a highly elegant preparation, and possesses an advantage over some others, in that it holds the various salts, including iron, quinine, strychnine, etc., in perfect solution, and is not liable to the formation of fungous growths.

CYSTITIS THE SEQUELÆ OF GONORRHŒA.

It is a well known fact that the use of astringent and antiseptic injections, in the treatment of gonorrhœa, not infrequently gives rise to various complications, such as cystitis, which not only prolong the course of the disease, but render it more severe and distressing. The problem of how to utilize the undoubted beneficial effect of these injections without subjecting patients to the accompanying risks can now be regarded as finally solved. Micajah's medicated wafers are of uniform composition, definite strength, and contain those astringent and antiseptic principles which clinical experience has shown to be most serviceable in the treatment of affections of the mucous membranes. By dissolving one wafer in the desired quantity of water, a solution of definite strength is obtained, adapted to any stage of the disease, or the sensitiveness of the urethra. This method of treatment with the wafers will be found of value, both on the score of simplicity, efficiency, and convenience of application. Write Micajah & Co., Warren, Pa., for samples and literature.

TREATMENT OF ANÆMIA.

Archives of Pediatrics (Oct., 1897, p. 780) says: The following method is one of the most efficient at our command for the treatment of anæmia or chlorosis:

℞	Ferratin	15 grammes.
	Natr. bicarb	9 "
	Sacchr. Alb	15 "

Divide into thirty powders.

Administer a powder three times daily in a glass of sweetened water.

This is designed for children over fifteen years of age. The dose for children between five and fifteen years is half this amount and one-quarter the amount for children under five years. An overdose causes no harm, for about twenty per cent. of ferratin is absorbed, without deranging the stomach or causing constipation.

AN ANTIDOTE TO THE TWO GREAT SYMPTOMS.

The value of antikamnia consists in its rapid effect in alleviating the suffering of the patient while more radical treatment is working a cure. While endeavoring to rid our patient of his neuralgia, rheumatism, typhoid, intermittent or malarial fever, secure him relief from pain and intermission of fever. We have, in short, in this drug, not a remedy for any disease, but a most useful antidote to the two great symptoms—pain and pyrexia.—*Medical Reprints*, London, Eng.

A LIBRARY IN ITSELF.

Few people are able to buy as many books as they would like, yet it is possible without them to keep in touch with all the leaders of literature, as well as to follow the world's progress in every department of science and industry. *The Youth's Companion* already provides the means for more than a million households—at an expense to each of $1.75 a year. Every issue of *The Companion* gives as much reading matter as a 12mo book of 175 pages, and *The Companion* comes every week. The quality of its contents is shown by the announcement for 1898, which promises contributions next year from the Rt. Hon. W. E. Gladstone, Rudyard Kipling, Speaker Reed, Capt. A. T. Mahan, Mary E. Wilkins, W. D. Howells, Lieutenant Peary, the Marquis of Dufferin, Senator Hoar, Justin McCarthy and more than two hundred other eminent men and women.

All new subscribers for 1898 will receive *The Companion's* gold-embossed calendar, beautifully printed in twelve colors, and the paper will also be sent free from the time the subscription is received until January, 1898, and then for a full year to January, 1899. A handsome illustrated prospectus of the volume for 1898 will be sent to any one addressing *The Youth's Companion,*
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LECTURES AND ADDRESSES.

THE USE OF THE OPHTHALMOSCOPE IN DIAGNOSIS.

An Address Delivered Before the Minnesota Academy of Medicine, November 10, 1897.

By J. W. Chamberlin, M. D.,

President of the Academy.

Before the invention of the ophthalmoscope all that portion of the interior of the eyeball posterior to the iris was in darkness, consequently all the numberless morbid processes which have their origin or manifestation in the interior of the globe of the eye were veiled from observation as completely as though divided from the anterior portion by an opaque screen. This most brilliant discovery is acknowledged by the scientific world to be one of the most beneficient achievements of modern times, and opens up to the general field of medicine, as well as to the ophthalmologist, a previously undiscovered and practically unknown region of the human anatomy. The honor and fame of this invention is popularly accorded to Helmholtz, who first introduced it to the ophthalmological world in 1851. Brunell Carter, however, asserts that the ophthalmoscope had been invented four years before Helmholtz's instrument appeared, by Mr. Charles Babbage. Helmholtz's instrument consisted of three pieces of ordinary glass set in a little frame. The amount of light reflected from one surface being about 1-25 of the amount that falls on it, a combination of three surfaces was employed to increase the reflection. This instrument at best gives but a feeble reflection and the illumination of the interior of the eyeball consequently weak. The instrument said to have been invented by Babbage was much superior to this, and consisted of a concave perforated mirror much like those in use at the present day, but it fell into the hands of a man who failed to make any use of it, and was consequently lost sight of.

It matters little to us who claims the honor of the first invention. Modern science has so perfected its mechanism and so amplified and extended its sphere of usefulness that it is become an almost indispensable adjunct to the armamentarium of the physician in whatever part of the field of medicine his practice may lie.

With the *modus operandi* of its employment you are all more or less familiar. The modern up to date ophthalmoscope consists essentially of a concave perforated mirror for illuminating the interior of the eye, and a series of lenses that may be rotated before the perforation to measure the refraction. Two series of lenses, one being convex and the other concave, are supplied, thus affording a sufficient variety of lenses to measure the refraction in all ordinary cases. In order to see the background of an eye, light must be projected into it through the pupil, and the eye of the observer must be in position to receive the rays of light reflected from the fundus of the one under observation. This is obtained by placing the observer and the mirror in front of the eye he is observing and throwing the light into the eye from a lamp a little behind and to the side of the eye under observation.

There are two methods of examining the interior of the eye, one known as the direct, and the other the indirect method. The former, as its name implies, consists in projecting the rays of light from the mirror directly into the eye under observation, and getting a clear view of the fundus. The examination by the indirect method is conducted with the aid of a strong convex lens of about 6 c. m. focus. This is held at about its focal distance from the eye under observation and the light thrown through it into the pupil. The reflected rays coming out through the pupil fall upon the lens and are brought to a focus between the observer and the eye under examination. Each method has its points of superiority over the others. The erect image is more highly magnified than the inverted image. Consequently, the direct method is particularly adapted to the recognition of the finer details of the fundus, while the indirect method gives a much greater illumination and renders the fundus visible, when from turbidity or cloudiness of the refractive media the direct method would yield only unsatisfactory results. Thus it may be advantageous to use both methods in conducting an examination.

Before examining the fundus of an eye we should determine the transparency of the refracting media. This is done by throwing a light into the eye from the mirror held at the ordinary reading distance. If the refracting media are perfectly clear, the pupil appears with a uniform red luster. If there are opacities in the refractive media, they appear as dark points or spots against the red background of the illuminated pupil. Then, by varying the position of the observer's eye, the position of the opacities can usually be determined; that is, whether the opacity is located in the cornea, lens or in the deeper structures of the eye.

The fundus of a normal eye appears as a red surface, and close observation reveals the optic disc and the vessels that rise out of it, and, passing over its edges, branch out, tree-like, into the retina. The color of the disc itself is a grayish or yellowish red, and its centre often presents a funnel-shaped depression lighter or more gray in color. The vessels are readily distinguishable into arteries and veins. The former are comparatively straight, narrower than the veins, and of a brighter color. The veins are darker, broader, and somewhat tortuous in their course. There are, of course, many modifications of these appearances in the various pathological changes which affect these structures.

The ophthalmoscope may be used in the hands of one well versed in its uses to determine the refraction of an eye, but the chief uses to which the ophthalmoscope may be put by the general practitioner of medicine are accessory to other means of making accurate diagnoses of obscure pathological conditions. There are many diseases of the brain and spinal cord in which the appearance of the optic nerve forms one of the chief diagnostic symptoms. In fact, this condition is so constant that Fuchs says: "In every case in which there is a suspicion of the existence of a cerebral affection the fundus of the eye should be examined with the ophthalmoscope." This is the more necessary since the condition known as "choked disc," arising from brain tumors, sometimes exists without any disturbance of vision. Many tumors of the brain of a focal nature are characterized by choked disc, and, indeed, in these cases it is said to be so constant—being absent in only 10 to 30 per cent. of cerebral tumors—that it forms one of the most important symptoms. This symptom claims special consideration inasmuch as a cerebral tumor may often run its course for a long time without producing any other positive symptom; e. g., it may simply cause headache, or even this may be wanting. In the later stages of the disease we may find optic nerve atrophy when the various disturbances of the function of vision manifest themselves.

Recent authorities claim that neither the size nor the situation of the tumor is important in the development of choked disc. This symptom has been observed when the new growth had scarcely reached the size of a walnut. Its absence has also been noted when the growth was much larger. Optic neuritis has been found both with tumors situated near the optic tracts, and also in cases where the growth was far removed from them; e. g., in the cerebellum. Among the focal affections of the brain which very rarely produce this symptom we may mention foci of softening, abscesses, thromboses of the sinuses, aneurisms, apoplexies and cysts, while among diffuse affections we may note that disseminated sclerosis, acute and chronic meningitis and hydrocephalus give rise to it. In tabes dorsales we may have simple optic nerve atrophy among its earliest symptoms. I have observed it where the usual train of symptoms were largely absent.

There is another eye symptom which is among the earliest manifestations of tabes, known as the Argyle Robertson pupil. In this condition the pupil no longer reacts to light and shadow, but we get a movement when the accommodation is brought into use. This is pathognomonic.

In cases of acute inflammatory glaucoma the symptoms which are first observed by the patient and bring him to his physician, often simulate those of an acute bilious attack, violent neuralgic pains in the head and sometimes in the side of the face, extending to the teeth, and accompanied by nausea, vomiting and great depression. In these cases the objective symptoms are often lost sight of, and the true character of the disease is not determined until the diminution of vision becomes so great as to call for special consideration. Here the ophthalmoscope is of paramount importance in determining the condition of the aqueous and vitreous humors. Among the earliest symptoms of an attack of acute inflammatory glaucoma are the turbidity or cloudiness of those two portions of the refraction media, and also there may be cloudiness of the cornea that can be more closely studied with the ophthalmoscope than by any other agency. The other objective symptoms which should be looked for are increase of tension; change in the size of the pupil and mobility of the iris; shallowness of the anterior chamber; dimming of the luster of the iris; and enlargement of the episcleral venous branches. I have in mind a young lady of my acquaintance who a few years since was treated by her physician for an acute bilious attack until complete blindness supervened. The subsequent condition of her eyes as revealed by the ophthalmoscope determined beyond any question that the attack was one of acute inflammatory glaucoma, which, had it been recognized in season, could probably have been successfully treated and her vision preserved.

I think that most authorities agree that in many cases of Bright's disease the characteristic appearance of the retina as seen with the ophthalmoscope furnishes the first clue to the real trouble. I was called not long ago to see a patient who, as her husband told me, had suddenly lost her vision. I found a woman strong and well nourished, in about the eighth month of pregnancy, whose vision was so much impaired that she could not distinguish one member of her family from another. The ophthalmoscope revealed the most typical case of albuminuric retinitis I ever saw, and an examination of her urine found it loaded with albumen. She had been under the care of a physician who, had he examined her eyes with the ophthalmoscope, must have discovered her true condition long before. Prompt and vigorous treatment enabled her to complete her gestation, and she is still living, though the disease still lingers with her.

The characteristic appearances of the retina in albuminuric retinitis, once seen, can never be forgotten. It generally begins at or near the macula, and variously shaped and placed white spots occur. In the earlier stages of the disease they may be small and sharply separated, but later they nearly always form a stellate figure, radiating from and surrounding the fovea centralis. Occasionally they do not completely encircle it. There are other and larger spots which occasionally surround the papilla, and which may coalesce and form a ring-shaped zone around the disc. These appearances are so characteristic that they are regarded as pathognomonic.

I have here enumerated a few only of the conditions in which the use of the ophthalmoscope is of great importance to the practitioner of general medicine as an aid to diagnosis. To the oculist it affords the only means by which nearly all of the most important diseases of the eye can be recognized.

A METHOD OF TREATMENT FOR ACUTE APPENDICITIS WHERE PUS OR SEVERE INFECTION IS PRESENT, WITH REPORT OF CASES.*

By W. Courtney, M. D.

Brainerd, Minn.

An experience in operating for appendicitis, which covers a good many years and a long list of cases, has convinced the writer that it is conservative surgery, so far, at least, as the life and comfort of the patient are concerned, to operate promptly when called during an acute attack. I do not wish to be understood as advising such a plan to any and all operators. On the contrary, I would only advise such a course where the surgeon has had considerable experience in operating for this disease. If the surgeon be not skilful in manipulation and technique, and fruitful in resource, it would be better for him to wait until certain that an abscess of considerable proportions is present, to be opened in much the same manner as an abscess anywhere else, or wait and operate after all acute symptoms have subsided.

There are many able surgeons, doubtless, who will not coincide with my views; they will maintain that it is much better to wait until the acute attack subsides, except in pronounced pus cases, and operate between attacks. At the present time, however, none of us can tell with certainty, during the earlier hours of an acute attack, whether perforation, or infection without perforation, so serious as to produce pus, has occurred or not. It not infrequently happens that perforations and serious infections occur during the, supposed, primary attack. Many of these cases of so-called first attack, if operated on at that time, will disclose a condition of the appendix that will conclusively show that the disease had existed for a very much longer time than two or three days. The patient has, unconsciously, been burdened with a dread disease for weeks and months.

The absence of a tumor in the region of the appendix is not positive proof that pus is not present. Neither is its presence sponsor for pus in all cases. I have frequently, when operating in the early stage of an acute attack, found pus in varying quantity, short of a large abscess, and but poorly walled off from the peritoneal cavity. These cases, prior to a year ago, were to me a source of great anxiety. Since then I have learned to fear them less. Of course, no one of good judgment would expect to remove the appendix always in such cases. When not removed the cases would be a source of anxiety, because of the danger of another attack and the difficulty of a secondary operation, particularly if the wound of the primary operation had been allowed to close by granulation. In addition to the increased length of time it requires for such wounds to heal (by granulation), and the greater tendency to hernia, there is another resulting condition which I believe is entitled to consideration: When the wound is left open, or partly open, and heals by granulation, the anterior surface of the colon protrudes into it and becomes firmly incorporated in the resulting scar. The result of this is it tends to increase the danger of hernia, leaves a possible source of intestinal obstruction and makes a secondary operation, where the appendix was not formerly removed, much more difficult. Reasoning thus, in regard to such cases, I have adopted the method of treatment which I will immediately describe.

In all acute cases where I think pus is very likely to be present, I make the usual incision, i. e., in the direction of the fibres of the aponeurosis of the external oblique muscle, through all the tissues until the peritoneal cavity is reached. This is much more satisfactory, where drainage is desired, on account of the greater room it gives, than McBurney's incision. On division of the peritoneum a careful search is made to ascertain if limiting adhesions have quite thoroughly shut off the infected region from the rest of the cavity. If not, hemmed gauze strips are carefully placed on all sides, with the ends out, and every effort made to avoid contamination outside of the operation area. This having been done, a careful search is made for the appendix, following the longitudinal band over the caput coli if possible. Should pus not appear the search is continued faithfully until the appendix is found, freed from its inflammatory bed and removed. Should pus in considerable quantity be encountered on the way to the appendix, and the latter found difficult to find and remove, its removal, if likely to result in contamination of hitherto clean tissue, is not attempted. All soiled gauze strips are carefully removed from the peritoneal cavity, and any exposed portion of the intestine that is soiled is carefully wiped off with gauze, moistened with normal salt solution. Hemmed iodoform gauze is now placed evenly about on all sides of the wound between the intestine and the parietal peritoneum; other strips are carried down where the pus was found and into all infected recesses. The free ends (several inches in length) of all strips are brought out through the wound and carried towards the right side. No sutures are introduced. The wound and neighborhood are well dusted with sterile iodoform and boracic acid, 1-10, a voluminous aseptic dressing is applied, and the patient put to bed and kept well on his right side during the first twenty-four to thirty-six hours. Usually the dressing has to be changed in from eight to twelve hours, owing to the free drainage, which is largely serous. As soon as the discharge becomes scant and limiting adhesions have formed around the borders of the gauze a portion of the latter is removed. Usually the temperature and pulse begin to approach the normal soon after the operation, which they reach in a varying period of from one to three or four days. After the temperature and pulse have remained at or about the normal point for two or three days and the gauze shows nothing but a slight gelatinous moisture on withdrawal, preparation is made for closure of the wound by secondary operation.

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* Read before the North Dakota State Medical Society, May 25, 1897.

Secondary operation: The patient is given an anæsthetic, usually chloroform; the wound and surrounding parts are made thoroughly clean; any granulations that may have formed are curetted away from the sides of the wound, which is again irrigated with normal salt solution and then filled with peroxide of hydrogen or pyrozone and again washed out. The adhesions between the gut and formerly divided parietal peritoneum are carefully separated, just enough to allow the edges of the peritoneum to be brought together and sutured with catgut. The rest of the wound is closed by buried and subcuticular sutures the same as in a clean, primary operation. Usually no drainage is used or required at this time. In one case (case V) at the time of the primary operation fæcal matter was found present with the pus, indicating connection between the bowel and the abscess, but had disappeared before the time of secondary operation. To make assurance doubly sure, however, I provided against possible secondary infection by carrying a medium sized rubber drain through the back and just within the peritoneum, at the point where fæcal matter had been found, before closing the anterior wound. It was removed on the third day.

Case I. Wm. M., aged 29 years, was admitted to the Northern Pacific Hospital, Brainerd, Minn., on the afternoon of May 31, 1896, suffering from a primary attack of appendicitis which had existed six days. Tumor present and abscess diagnosed. Patient was immediately prepared for operation. About an ounce of pus found and the appendix removed. Wound left wide open with gauze drainage. June 1, wound dressed twice, because of free drainage; highest temperature 101.2,° pulse 96; bowels were moved. June 2, wound dressed; less discharge; bowels moved. Afternoon temperature 101,° pulse 98. June 3, wound dressed, amount of discharge small, a part of gauze drainage removed. P. M. temperature 100.6,° pulse 88. It was not until the eleventh that the temperature reached the normal and remained there although the pulse had been of good quality and rate soon after the operation. June 14, secondary operation was done according to the method previously described. Fourteen days later the patient was a perfect cure, not an untoward symptom having developed after the secondary operation.

Case II. Charles J., locomotive engineer, aged 33 years, was admitted to the Brainerd N. P. R'y. Hospital, June 27, 1896, desiring an operation for recurring appendicitis. The patient had had a number attacks of what had only lately been diagnosed as appendicitis, and was but partly recovered from a recent attack. He was weak and debilitated from a long period of poor health and his recent illness; his temperature and pulse, however, were at or about the normal. The physical examination showed marked tenderness at the usual site of the appendix and deep palpation indicated a small and indefinite tumor in the same region. Judging from the history of the patient's recent attack and our examination, we concluded that he was convalescing and it would be better to wait until his health and strength had been improved before operating on him. July 6, ten days having passed and no particular improvement or change having taken place, not even in the temperarure or pulse, the operation was performed. The appendix was found bent upon itself, in a rather small mass of plastic exudates, dipping into the pelvis and containing a few drachms of pus. The appendix (which was not perforated) and a rolled-up mass of omentum, whose vitality seemed uncertain, were removed. The wound was left wide open and drained with gauze. During the first 24 hours drainage was free, the temperature rose to 101.4° and the pulse to 100. During the succeeding six days the temperature ranged between 101° and normal and the pulse between 76 and 92. It was not until July 16, or ten days after the primary operation, that I considered it advisable to do the secondary operation. On the day following the secondary operation the temperature reached 99° and the pulse 88. After that the temperature never rose above normal and the pulse never higher than 80. Wound firmly closed and the sutures removed on the tenth day. The full recovery was perfect and permanent and as prompt as could be expected.

Case III. John L. P., laborer, aged 29 years, was admitted to the hospital at 9 P. M., August 4, suffering with acute appendicitis, which he claimed was his first attack and that he had never suffered anything of the kind before. He had been sick one day when admitted. Temperature on admission 98°, pulse 68. Marked tenderness at so-called McBurney's point and complains of a great deal of pain. Calomel and Rochelle salts ordered given and free bowel movement resulted. August 5, 10 A. M., patient complains of more pain; has more localized tenderness with fixity and rigidity of local muscles, temperature 99.4°, pulse 72. 4 P. M., operation. The local parietal and visceral peritoneum found greatly injected, but little plastic exudate and few adhesions; appendix removed, found greatly enlarged and badly diseased throughout its length, evidence of long standing disease. A small spot near the middle was gangrenous and perforation was about to occur. The wound was partly closed and sutures placed for secondary closure after removal of drainage, gauze and glass drain coming out of lower angle of wound. August 6, A. M. Patient had an uncomfortable night and complains of a great deal of pain. Wound dressed, rather small amount of discharge. 7 P. M., temperature 100°, pulse 80. Has vomited and still complains of severe pain. August 7. Patient had a poor night; continues to vomit; abdomen is tender and tympanitic. Wound dressed; very little discharge. Bowels moved three times; temperature 99.8°, pulse 80. 4 P. M., temperature 100°, pulse 80, patient growing worse so far as pain and increase of peritonitis is concerned. Gave chloroform to patient in bed, removed all sutures and glass drain, opened wound up widely and introduced a number of iodoform gauze strips in all directions, put on voluminous dressing and kept patient on right side. August 8, patient much more comfortable, temperature 99.4°, pulse 72. Wound dressed, very free serous drainage and abdomen less tympanitic. Afternoon temperature 98.8°, pulse 64. Patient more comfortable in every way. Wound dressed, still free serous discharge. August 9, patient doing finely, most of the gauze drainage removed. August 11, secondary operation for closure of wound including peritoneum; no drainage. Highest temperature following this operation, at any time, was 99° and pulse did not go above 68. Was out of bed on the thirteenth day following the secondary operation. Further progress was very rapid and ended in perfect and permanent recovery.

Case IV. John C., clerk, aged 20 years. I first saw this case on September 6. He had been treated by my assistant since August 28, through a primary attack of apparently catarrhal appendicitis, and had seemed to make a rapid recovery until September 4, when his temperature rose from normal at noon to 103° at 4 P. M., and pulse from 60 to 84. He was put back to bed, hot fomentations applied and salines given. Temperature and pulse fell gradually, so that the highest temperature on the sixth was 100°, pulse 60, when I first saw him. There was tenderness and sensation of resistance and fullness in right iliac fossa, but not much pain. Operation was advised and consented to, and on September 7, after usual thorough preparation, I opened the abdomen. About one-half an ounce of pus was evacuated from outer side of fossa, and as the appendix did not readily present, no vigorous search was made for it. The wound was carefully packed with strips of iodoform gauze and a voluminous aseptic dressing applied, no sutures being introduced. Patient put to bed and kept turned well on to right side. Temperature rose to 100.4° and pulse to 92 at 9:30 P. M., and this was the highest point reached at any time after the operation. September 8, wound dressed twice; drainage very free and mainly serous. From September 8 to 15 the temperature and pulse remained normal and the discharge from wound rapidly ceased. The patient was entirely comfortable, slept well, and bowels moved freely under influence of occasional doses of saline cathartics. Wound was dressed every day, with full aseptic precautions, and, as dressing was scarcely stained on the fourteenth, preparation was made for secondary operation the next day. September 15, under chloroform, secondary operation for closing of primary wound, as usual, and aseptic dressing applied. Recovery was rapid and uneventful. There was no rise of temperature or pulse after the secondary operation, and there have been no symptoms of any recurrence since that time.

Case V. Charles J., car-repairer, aged 46 years, was admitted December 13, 1896, for acute appendicitis, primary attack. He had been sick twenty-four hours. Temperature on admission at 6:30 P. M., was 101° and pulse 112. Cathartic given and patient ordered prepared for operation on the following day. December 14, 8 A. M, temperature 100.2°, pulse 88. Three P. M., operation; appendix found extending upwards behind cæcum and surrounded by pus and fæcal matter. It was perforated near its distal extremity, and so was the colon, to which it was adherent. The appendix was removed, the wound left widely open, after having been properly drained with iodoform gauze. Drainage was very free during the first twenty-four hours; some fæcal matter was present in the wound discharge for two or three days, and a strong fæcal odor persisted for as much longer. The temperature and pulse were but slightly above normal at any time succeeding the operation. December 23, there having been no discharge from the wound for two or three days, the operation for secondary closure was done. The wound was closed completely, after having carried a rubber drain of medium size through the back. The recovery was uneventful and complete.

Case VI. James B., a locomotive engineer, aged 43 years, was admitted February 23, 1897, for acute appendicitis, from which he had been suffering three days but was now feeling much better. Examination showed tenderness and tumor in right iliac fossa; temperature 99°, pulse 60. Cathartic ordered. Feb. 4, A. M. temperature 98.8°, pulse 64. The bowels moved freely during the day. Afternoon temperature 99.4°, pulse 66. Appendiceal abscess diagnosed and patient ordered prepared for operation on following morning. Feb. 5, operation. When the peritoneum was opened and the finger introduced for exploration an ounce or two of pus was liberated; the limiting adhesions did not seem strong and as the appendix could not be readily found its removal was not attempted. Free drainage was provided for, by introducing sterile iodoform gauze and leaving the wound unsutured. There were no untoward symptoms following the operation. Feb. 11, there having been no discharge from the wound, beyond a mere gelatinous moisture, for the past two days, secondary operation for closure of the primary wound was done. No untoward symptoms of any kind followed. The patient was around the house in fourteen days, and has been well ever since. No recurrence thus far.

The method of treatment as outlined above has given such satisfactory and gratifying results, in the cases where it was indicated and used, that I felt constrained to bring it to your notice, otherwise I would have chosen a less hackneyed subject than appendicitis when so kindly invited by your Secretary to read a paper before your honorable Society.

Before closing I wish, particularly, to call your attention to an important feature in connection with the operative treatment of abscess cases, and also badly infected cases without pus, of appendicitis, viz: drainage. I am convinced that infinitely better drainage is secured when the wound is left entirely open with plenty of gauze alone for drainage than when partly sutured and drained chiefly with glass or rubber drains. If I am right, this must greatly increase the chances of recovery in many cases. Some may object to the additional work which it entails, viz: the secondary operation for closure of the primary wound. None ought to weigh additional work or trouble as against the life or comfort of a patient. As a further argument in support of the secondary operation I wish to call attention to the cases where the appendix is not removed. It is surprising how few of these cases recur when the abscess has been properly drained. Fitz states that only eleven per cent. recur. How necessary then to leave the abdominal wall in the best possible condition.

FRACTURES AT AND NEAR THE ELBOW.*

By A. W. Whitney, M. D.

St. Paul.

What has prompted me to take the subject assigned to me, viz: "Fractures of the Lower End of the Humerus," has been the unusual number of cases which fortunately, or rather unfortunately, within a short period of time I have had in my practice. In addition to this, the patients were children.

Outside of the presentation of the cases I claim no originality either in the diagnosis or treatment.

There are many varieties and forms of fracture in this situation which it is always desirable to diagnose—not only the particular form of fracture, if such exists, but also to exclude dislocation of the forearm, whether the fracture is simple or multiple, whether the elbow joint is involved; e. g., if the fracture or fractures extend into the joint. In children and young adults a possible separation of the epiphysis must be taken into account in arriving at a proper conclusion of the case. To be sure of my diagnosis, or rather to make my diagnosis, I administered an anæsthetic in each case. I believe this to be an almost necessary preliminary in the cases of this form of injury. A surgeon can not only make out the exact injury, but it also aids him greatly in the reduction and the application of proper dressing, not to speak of the humane side of the matter.

A fracture of the lower end of the humerus may be transverse or irregular above the level of the so-called condyles. Sometimes there is, in addition, a line of fracture at right angles to the transverse one extending into the joint, constituting what is called a T-shaped fracture. The epitrochlea may be broken off entire alone, or with the trochlea, the epicondyle alone or with the condyle. There may be a combination of any of these forms, making a multiple fracture. Finally, there may be a separation of the epiphysis from the shaft. It is often easier to speak theoretically of these fractures than it is to demonstrate them practically.

In regard to causation, it may be due to violence directly applied to the part, or indirectly, such as falling on the hand with the forearm extended or slightly flexed. My cases all being children, it was found impossible to be sure of the exact history, but from close questioning my inference was that the breaks in the majority of the cases were due to indirect violence, such as falling on the hand or wrist. It is highly probable that the tension of the muscles in the effort to avoid falling may have something to do in causing the fracture, or at least in determining its seat and direction. Even if in the act of falling the forearm be extended, when the hand strikes the ground it becomes somewhat flexed, thus the ulna is forced against the humerus and held there by the muscles, so that there is a combination of leverage and muscular action to which it is not surprising that the bone should yield. Still another condition favoring fracture is the irregular way in which the force comes, not being through the axis of the humerus, but at an angle to it.

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*Read before the Ramsey County Medical Society, September 21, 1897.

The symptoms in these cases, to be fully apprecieted, should be seen soon after the receipt of the injury, as swelling soon occurs and especially where the joint is affected. The usual position of the displaced bones is the lower fragment with the attached forearm drawn up behind the lower end of the upper fragment, the latter of which presents itself as a sharp edge at the fold of the elbow, occasionally protruding through the skin, producing a compound fracture.

This displacement backward of the lower fragment was present in all my cases. There are reported cases where the conditions were reversed, and the lower part of the bone was in front of the upper. The appearance of the whole arm at first sight simulates, in a marked degree, a posterior dislocation of the bones of the forearm on the humerus. Pain is nearly always present, with total loss of power in the limb.

On examination, especially with the aid of anæsthesia, the abnormal mobility of the arm at the elbow is marked. The free motion of the forearm in all directions is very noticeable, unless there has been great swelling and effusion into the parts. In speaking of this marked mobility, it is to be remembered that in the physiological state, with the exception of pronation and supination, there is only one motion of the elbow, which is the hinge like motion of flexion and extension. Sometimes this free motion is so marked as to be in itself puzzling, as in cases of multiple fracture of this locality running into the joint. The sensation imparted to the touch when the forearm is related to the humerus is that of a loose rattling. When, therefore, there is any lateral mobility of the elbow, a fracture may safely be said to exist.

Crepitus is usually very easily elicited on grasping the forearm and moving it on the humerus. By pressure through the condyles, if pain is produced and crepitus, there is known to be a fracture running into the joint, often of the T-shaped variety. In this connection, the distance between the epicondyles will usually be increased, which can be easily and simply demonstrated by laying the elbow on a smooth surface and placing a book or other object on each side against the epicondyles, and then measuring the distance and comparing it with the sound arm. The increased antero-posterior diameter of the elbow joint is one of the prominent symptoms in most cases, due to displacement of the bones. The forearm is usually flexed to a greater or less degree.

As yet I have been speaking only of fractures traversing the humerus just above its articular surface, whether accompanied or not with fissures extending into the joint. The epicondyle and epitrochlea may be broken off without affecting the joint, but it is a rare occurrence when the joint fares so well.

Especially in separation of the epitrochlea is there apt to be permanent displacement of the fragment, either upward, downward, upward and backward, downward and backward, etc. This displacement is most apt to take place just previous to the formation of callus and is gradual, caused by traction of the muscles attached; if upwards, to the action of portions of the triceps or brachialis anticus. Some of the other displacements are due to the action of the superficial flexors and the pronator radii teres.

Separation of the lower epiphysis can only occur in children or early youth. On passive motion, crepitus of a modified character may be produced; this with some pain and loss of power are usually the only symptoms, not usually being much deformity, i. e., where a portion only of the epiphysis is separated. Where the epiphysis is separated as a whole the situation and symptoms will be about the same as a transverse fracture above the joint.

Diagnosis. The sooner a patient is seen after the receipt of the injury, the easier it is to arrive at a correct diagnosis, because of the usual great amount of swelling soon following the injury. If seen a long time afterwards, to make out the true conditions of the parts even with the aid of an anæsthetic is often extremely difficult.

Taking all fractures at the elbow as a whole, about the only condition resembling it would be a dislocation of the bones of the forearm backward. The points of differentiation would be as follows: In fracture, upon applying the finger to the bend of the elbow, a sharp and ragged edge can be made out if there be not too much swelling. In dislocation, the rounded articular surface of the lower end of the bone will be felt.

In fracture, i. e., transverse of the lower end of the humerus, where the epicondyles are not involved, the normal relationship of position of the olecranon and condyles is maintained, while in dislocation there would be a great change. In fracture involving the joint, the distance between the epicondyles is usually increased. Crepitus and increased mobility of the elbow are characteristic of fracture.

If the forearm can be moved from side to side on the arm, fracture may be put down as a certainty If on pressure through the epicondyles pain be produced and if in addition thereto, crepitus be elicited, a fracture involving the joint may be taken as certain. If there be not excessive swelling, a separation of either epicondyles can usually be easily demonstrated.

I believe the prognosis in these cases should always be guarded. The elbow, even in the mildest and most favorable cases, is apt to be at least temporarily stiffened, and in any case, if there should be left a slight displacement, the result would be a more or less impaired motion in the elbow joint. Then there is the possibility of permanent injury to other tissues such as blood-vessels and nerves from either pressure or tearing.

In the treatment of my cases, I found very little difficulty in the reduction of the displaced bones under anæsthesia. After the reduction where there was a great amount of swelling and increasing and I had any suspicion of the joint being involved, I delayed putting on any splints or other retaining appliances at the time, but putting the limb on a pillow or in a sling, waited until the swelling had abated or rather ceased to increase, and in the meantime directed that a lotion of lead and opium be constantly applied. In that of my first patient, I did not apply a dressing for three days, because of the coëxisting joint inflammation. In nearly all cases after the splint was applied, no pain existed sufficient to require an opiate. I believe, although open to some criticism, that the absence of pain in a limb after a fracture has been reduced is a sign that the fragments are in their proper position.

Packard gives four cardinal points to be observed in the successful treatment of these fractures:

First—To keep the fragments in contact and at rest.

Second—To prevent the formation of an angle salient anteriorly.

Third—To maintain the oblique line of the articulation by avoiding upward pressure on the inner portion of the joint surface of the lower fragment.

Fourth—To obviate stiffening of the elbow.

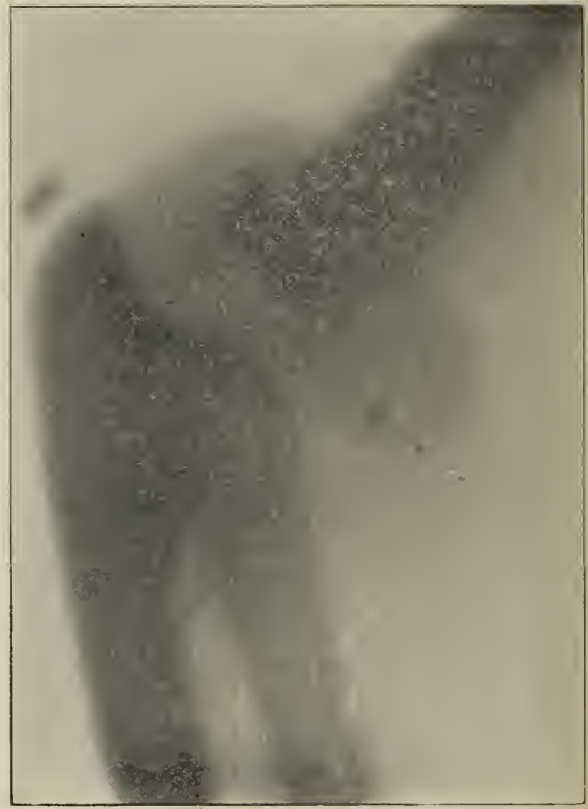
As to the first of these, owing to the extreme shortness of the lower fragment it is sometimes hard to apply a retaining apparatus which will keep the ends perfectly in contact and at rest without winding the roller bandage so tightly as to impede circulation in the limb. In fracture at this place there is apt to be displacement from muscular action.

The flexors, pronators and extensors all tend to pull the lower fragment forward, and as it yields, its upper end must necessarily tilt in this direction. The triceps draws the olecranon upward and anteriorly; the biceps and brachialis anticus do the same. If union takes place with the bones in this position, i. e., with a salient angle anterior, it can be easily understood how the amount of flexion of the elbow afterwards will be lessened.

By observing a normal elbow it will be seen that the inner condyle of the humerus is on a lower level than that of the outer condyle. The transverse line of the elbow joint will consequently run in a direction, starting from the outer side, downwards and inwards, thus forming an obtuse angle, salient inward.

One of the effects of the abnormal mobility in question is to bring this transverse line to a horizontal one, or even to one running in an exactly opposite way.

Any retentive appliance which presses directly across the front of the elbow will favor this displacement. If union occurs under these conditions a noticeable awkwardness will be left in the limb, besides its being less strong and useful.



SKIAGRAPH OF BACKWARD DISLOCATION OF ELBOW IN BOY ELEVEN YEARS OLD.

The early use of passive motion of any one thing alone I believe to be the most important. In every case I started working the elbow joint, besides pronating and supinating the forearm, from one week to nine days after the accident, continuing this twice a week for two weeks, and then every other day until I discharged him.

The form of splint which I used in all of my five cases is the one recommended by Packard, which is designed to especially meet these difficulties in the treatment spoken of. It is made out of mill or cardboard, the size of it being taken from the sound limb. The upper part of it is to fit over the front and side of the humerus, while the lower fits the ulnar side of the forearm with the hand supinated. A better idea of the splint will probably be secured by seeing it.

My first case, which I here present, was a multiple fracture of the lower end of the humerus, which subsequently became compound by projection of the external condyle through the skin. On first examination there seemed to be at least three or four lines of fracture extending into the joint, which latter became involved by inflammation. The deformity present seems to be due to displacement of the external portion of the lower end. One peculiar thing about this deformity was that it increased while the process of repair was in progress.

While there is considerable deformity in the limb, he has a very useful limb as far as strength and motion in the elbow are concerned. The injury was received April 22 of this year. A plastic operation might considerably improve the appearance of the limb.

My second (May 18) and third (June 27) cases were diagnosed by me as simple transverse fractures of the lower end above the level of the condyles, the joints not being involved.

The fourth (August 11) was an oblique fracture running from without upwards and inwards. The line of fracture I guessed to be about two and one-half to three inches. There was considerable overriding of the fragments.

The fifth (August 29) was either a transverse fracture or else a separation of the epiphysis, I cannot exactly say. You will notice, also, that there is a small detached piece of bone from the external condyle.

The sixth (one of Dr. Schweitzer's cases, which he has kindly allowed me to present) was a fracture of the external condyle, the fragment of which threatened to perforate the skin, and which he subsequently operated on and removed part of it.

INTESTINAL PARALYSIS FOLLOWING ABDOMINAL OPERATIONS.*

By J. L. Rothrock, M. D.

St. Paul.

It may be said that a certain amount of gaseous distension of the intestinal tract follows almost every abdominal operation.

This phenomenon has been variously explained, but it is now generally believed to be due to the mechanical irritation consequent upon opening the peritoneal cavity, and the obvious handling of the viscera incident to such operations thereby setting up a disturbance in the circulation as wel as in the mechanism of the peripheral nerve endings of the intestine. This meteorismus is usually of short duration, beginning at the end of the first or the beginning of the second day, and disappears after the first movement of the bowels, leaving the patient much relieved; and from thence, in the majority of cases, convalescence runs an uninterrupted course.

Its termination is, however, not always so favorable, and, from the fact that it is a complex symptom, indicative of several conditions, it is always to be anxiously regarded, especially when it persists beyond the usual period and fails to be relieved by the remedies commonly directed against it. The pioneers of abdominal surgery soon learned to appreciate the impôrtance of this system and included it in what they were wont to call the three furies of their art, namely, vomiting, tympanites and peritonitis, which, of course, usually meant peritonitis, and was, indeed, much to be dreaded.

We now know that persistent meteorismus may be indicative of peritonitis or intestinal obstruction. On the other hand, whether progressive meteorismus, leading to intestinal paralysis independent of mechanical obstruction or peritonitis, may exist, has been much discussed in recent years. In 1887, Olshausen[1], before the Society of Obstetrics and Gynæcology of Berlin, reported a series of cases which terminated fatally, the chief symptoms of which were progressive abdominal distension, with small, frequent pulse and subnormal temperature, vomiting, and at the autopsy of which no evidence of peritonitis could be found.

The intestine contained a large amount of fluid, with no evidence of obstruction at any point. He offers in explanation of these cases a primary paralysis of the bowel, with distension and antiperistaltic movements in the upper part of the intestinal tract, death being due to ptomaine intoxication. Previous to this it had been a matter of common observation among surgeons to witness cases in which, after simple abdominal operations —as, for example, simple herinotomy—death resulted after one or two days, the chief symptoms being abdominal distension, subnormal temperature, and at the autopsy no evidence of peritonitis could be found. Furthermore, the same phenomena have been observed following the simple reduction of a strangulated hernia without even opening the peritoneal cavity.

Since then, Grundzach[2] reports a case following laparotomy for ruptured tubal pregnancy, and Stumpf[3] met it in two cases following laparotomy for uterine myoma, both of which had the good fortune to see their patients recover.

More recently, Engstrom[4] has reported four cases following laparotomy which presented symptoms of a similar nature to those reported by Olshausen, and all of which terminated fatally. At the autopsy, in neither of these cases was he able to find evidence of peritonitis or mechanical obstruction of the bowel.

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* Read before the Minnesota Academy of Medicine, November 10, 1897.

For the older writers simple paralytic ileus played a very important röle and was supposed to be of frequent occurrence. A closer study, however, showed that it is usually to be explained by the presence of an acute or chronic diffuse or circumscribed peritonitis. On the other hand, the number of carefully observed cases which have been reported in the last few years render it certain that a progressive meteorismus tending to death in the absence of peritonitis or mechanical obstruction may occur, although it is not common.

Before the researches of Pawlowsky[5], in 1889, many such cases, following operation, were reported, which must now be classed as examples of acute septic peritonitis, for he has shown that in this condition death may result so quickly that the peritoneum, not having had time to react against the infection, may show few or no lesions; yet in the fluid in the peritoneal cavity countless bacteria may be found.

The results of Frankel's[6] experiments a few years later are in in entire accord with those of Pawlowsky, that in very intense infection no appreciable macroscopic lesion of the peritoneum may be found. More recently Jayle[7] made a study of 14 cases of post-operative peritonitis and found that in those cases in which the infection was very intense, death resulting at a very early period, few lesions of the peritoneum were to be found, aside from slight injection of the vessels of the serosa and occasionally some roughening of the peritoneal surface of the intestines. He almost constantly found, in addition to these slight changes, a small amount of fluid, often bloodstained, in the pelvis, which contained bacteria, most frequently streptococci, sometimes staphylococci, and the bacterium coli communis.

It is at once evident that some reserve must be exercised, and that we must be cautious about declaring the absence of peritonitis in these cases upon microscopic evidence alone.

On the other hand, does the presence of bacteria found in the peritoneal fluid post mortem in the absence of other lesions, prove the existence of peritonitis?

In the light of modern knowledge of bacteria this is questionable especially as regards the colon bacillus.

In 1891 Welch[8] pointed out that after death this rather common invader gained entrance to the circulation and was soon found in various organs and tissues of the body, often in the neighborhood of pathological processes concerning whose etiology it had absolutely no relation. In a recent address before the American Medical Association he takes occasion to reiterate this statement, and says that as an exciter of disease, the colon bacillus has been widely over-estimated.

I do not wish to be understood as maintaining that this microörganism may not produce peritonitis for that fact is established beyond doubt; but the mere finding of this bacillus in the peritoneal cavity after death in the absence of other lesions could hardly be considered conclusive evidence of peritonitis. Furthermore the presence of the colon bacillus in the peritoneal cavity post operative, in the absence of other microörganisms, which it is reasonable to suppose must in all likelihood have gained entrance at the same time, argues strongly in favor of the view that the mode of access was by wandering out through the wall of the intestine after death.

Within recent years much study has been given by various investigators with regard to the power of microörganisms to penetrate the intestinal wall the vitality of which has been lowered. The facility which strangulated hernia offers for such investigations has caused most researches to be made in that line.

As early as 1867 Nepveu first discovered bacteria in the fluid of a hernial sac. Garré[9], in 1886, after a series of experiments, concluded that as long as no irreparable damage was done to the intestine, microörganisms did not penetrate its walls. Pawlowsky's experiments gave results quite in accord with this, for he found that after strong chemical irritation of the peritoneum, no outwandering of bacteria took place. On the other hand Boennecken found that in all stages of strangulation, whether the contained fluid was clear or bloody, he was able to detect in it the presence of microörganisms. In this conclusion Boennecken seems to stand alone. More recently Tavel[10] and Lantz in twenty-five cases of hernia found the fluid in the sac sterile in nineteen while in the other six it contained bacteria.

Ziegler[11] concludes, after numerous clinical observations and experiments, that simple venous stasis is not sufficient to permit of the out-wandering of bacteria from the intestine, and that this only occurs after necrosis has taken place.

It is worthy of note that in the experiments of Travel and Lantz the bacteria found were always bacilli, frequently non-pathogenic and in no instance the streptococcus or staphylococcus.

A careful analysis of Engstrom's reported cases shows that they are free from doubt as regards peritonitis, for the peritoneal fluid yielded negative results to bacteriological tests.

In this connection I wish to report a case which recently came under my observation, and which clinically presented every evidence of intestinal overdistension bordering a paralysis but which yielded to vigorous treatment and terminated in recovery.

I. G. Colored, aged 35, family history doubtful, had rheumatism when a child. Admitted to City Hospital June 5, 1897, suffering from failing compensation from mitral insufficiency. She also had a large fibroid tumor of the uterus which caused her considerable inconvenience from pressure. After three weeks in bed compensation returned, but she still suffered from pressure symptoms from the tumor.

Her condition being sufficiently good to warrant it, she submitted to an operation, and accordingly, July 1, I removed the tumor by abdominal hysterectomy, the operation being comparatively easy and without event. She recovered from the immediate effect of the operation and did well for two days. On the morning of the third day she was given magnesium sulphate in drachm doses, repeated hourly, until six were taken. The same afternoon, with the aid of an enema, the bowels moved freely. That same evening her pulse, which had previously been 100, ran up to 140. The temperature was 99° and the abdominal distension, which was previously present, but not marked, increased, giving the case an altogether bad aspect. In addition, vomiting had set in, following the administration of the saline.

The rectal tube brought away a little flatus, but in no sense relieved the distension. The administration of stimulants brought the pulse down to 120 by midnight. During the night there were two more stools. On the morning of July 4 the temperature was 96 3-5°, pulse 120. Abdominal distension still marked and patient continued to vomit.

During the next two days the condition remained practically unchanged, abdominal distension still persisted, nausea and vomiting still continued, temperature ranged from 97° to 99°. pulse 120 to 130; patient had one more stool and with slight amount of flatus.

July 7, abdominal distension becoming more pronounced, temperature 97°, pulse 130; still vomits greenish fluid.

July 8, temperature 100°, pulse 120. Enema brought away stool and flatus. Later insertion of rectal tube brought away some fluid, but no flatus.

July 9, condition materially changed for the better. Several very large stools, temperature 100°, pulse 120, abdominal distension diminishing. The following day there were several more large stools, and large amounts of flatus were expelled. The abdomen now began to become soft and the distension to diminish, and from that on convalescence was uneventful.

This, then, was a case which presented alarming symptoms. The progressive abdominal distension with rapid pulse at first suggested diffuse septic peritonitis, but the slower progression and termination in recovery dispels that view. On the other hand, there was no evidence of mechanical obstruction of the bowels, for they never failed to respond to purgatives.

But one theory in explanation seems to be advanced by various writers on this subject, namely, that it is due to the mechanical insult incident to the operation. That may account for the immediate causation of this condition, but it seems that in this explanation sight has been completely lost of the predisposing causes, which, in the case just reported, undoubtedly played an important role.

The advocates of moist asepsis in the peritoneal cavity base their claim on the deleterious effect of the mechanical injury resulting from dry asepsis; but according to Uhlmann[12] the difference in the results achieved by those employing dry asepsis does not warrant such a conclusion.

Olshausen urges as an argument in favor of Trendelenberg's posture that by it mechanical injury of the peritoneum is less likely to occur, and hence, also, less danger of ileus. While this view has been advanced by others, proof of the theory is not at hand, judging from results attained by different operators. In the case just reported, on close inquiry it was subsequently found that the patient had for years suffered from chronic constipation and great annoyance from gas. The bowels had moved at regular intervals and had been, as supposed, thoroughly moved just previous to the operation, but the intestinal tract had, notwithstanding this, never been entirely emptied of its long standing accumulation, as was subsequently demonstrated. The immediate cause of the constipation was, no doubt, pressure from the tumor, which had reached such size as to fill the pelvis.

According to Rosenheim[13], an atonic condition of the muscles of the intestines results from long continued constipation, which is analogous to that found in dilatation and motor insufficiency of the stomach.

It must not be forgotten that ulceration of the intestine may predispose to distension, as in a case reported by Davis, occurring in a pregnant woman. It would seem, therefore, that in this case the cause of the threatened intestinal paralysis must be sought in atony of the muscular wall of the intestine, induced by long continued habit of constipation, with failure to have completely emptied the bowels before the operation; added to this, the disturbance incident to the operation, which acted as the exciting cause.

According to Grieg Smith, obstinate meteorismus is most frequently met with after operations for myoma of the uterus. In perfect accord with this view are four cases reported by Engstrom, three of which were for myoma, as well as those reported by others. Clinically, also, we find that women with myomatous uteri suffer more or less from digestive disturbances, and constipation is almost the invariable rule, not infrequently due to pressure of the tumor on the rectum. The distension is usually confined to the stomach and small intestine, as shown at the autopsy of the cases reported by Engstrom, rarely the colon.

With regard to the treatment of this condition it should be essentially prophylactic. The patient should be prepared with especial care before the operation. and it should be seen to that the bowel is thoroughly evacuated, especially in cases of long standing digestive disturbance or constipation.

While the use of opium has largely gone out of practice following abdominal operations, it is absolutely contraindicated in cases where there has been atony of the stomach or bowels, and strychnine should be given for some days previous to the operation and for the few days immediately following. Within recent years the administration of subnitrate of bismuth just previous to the operation has been suggested and practised by some surgeons as a prophylactic measure against distension, especially with a view to avoid troublesome handling of distended bowels during the operation. In case we are confronted with this condition following operation, the bowels must at once be emptied, preferably by one large dose of calomel. If vomiting is present, all nourishment must be withheld from the mouth, and nutritive enemata must be resorted to. Strychnine in full doses is always indicated, and stimulation with brandy or champagne is usually required. Nausea is best relieved by lavage with a soda solution, and, besides, it often helps to relieve the distension. Frequently repeated high enemata containing turpentine and asafœtida are of great service in bringing away flatus, thus relieving the distension.

The use of counterirritants over the abdomen is particularly efficacious, especially the use of the Paquelin cautery, applied lightly over the abdomen as described by Clark[14].

These cases should be actively treated at the very onset, and if the distension is not relieved by the simpler remedies the more vigorous should be tried in quick succession. for after the distension becomes pronounced the patient is truly in a critical condition, as will be seen by the fatality which has attended the cases reported.

The slower progression of the case enables us in the majority of instances to differentiate paralysis from acute diffuse septic peritonitis, though at first the two conditions may be indistinguishable. This is, however, no contraindication for its employment, for the treatment is, in the early stages, in the main identical.

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BRONCHITIS AND ITS COMPLICATIONS.*

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Bronchitis is of great importance to physicians from its extreme frequency, furnishing us much employment, especially during certain seasons of the year.

Vogel long ago said that very few children have lived any length of time without having bronchial catarrh, and the most of them have required professional services; and this is just as true today as it was at that time. Simple bronchitis is seldom a direct cause of death; a very large part of our cases are secondary to or complicate other troubles, as the acute infectious diseases and many other conditions when the danger comes not from the bronchitis direct, but its complication, particularly from its great liability to extend to deeper structures, thus becoming one of our gravest maladies. Its course varies within wide limits and its termination may be in recovery in a few days or weeks, or it may pass into broncho-pneumonia with an independent course of its own. Diagnosis is easily made, offering few points of differential diagnosis.

Etiology. The chief cause of the increased liability to bronchitis in infancy lies in the predisposition from the peculiar anatomy of the infant lungs. The bronchial tubes are proportionally large. and the air vesicles small and many of them defective in development. The mucous membrane is loosely attached while the vessels are poorly supported and ever ready to take on congestive action from slight causes.

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*Read before the Section of Medicine of the Minnesota State Medical Society, June 17, 1897.

Older writers laid great stress upon exposure to cold and dampness as the all important cause of bronchitis, and from the relatively larger number of cases occurring in cold and wet seasons can have no doubt that importance should be placed upon these elements of infant dangers, but, as in many other diseases, so in bronchitis our recent observers have been able to demonstrate causative elements new and unknown to those who had labored in the same field before us.

Dentition has long been recognized as a cause of bronchitis, but some recent authorities tell us it comes from impaired nutrition, and place this and several other diseases in one class, and say diseases that produce malnutrition may cause bronchitis. Prominent in this list we may mention rachitis, which strongly predisposes to bronchitis even in its incipient stage.

Many of the infectious diseases have bronchitis as a concurrent symptom, especially measles, whooping cough, diphtheria, influenza and typhoid fever. We speak of the bronchitis as secondary or dependent upon a specific poison, likely acting through the nervous system, and think of the bronchitis as a symptom of this disease, and probably this manifestation has the same poison for a cause as the other symptoms.

With typhoid fever in infants the bronchitis is often more prominent than the other symptoms, and it is not unusual for a typhoid to pass for bronchitis until late in the disease, when a correct diagnosis may be reached.

A cause of bronchitis may be the presence of putrid fæces in the intestines. Recently Le Sage and others have found post mortem the presence of the bacillus commune coli in the lungs in cases of broncho-pneumonia, which from the history resulted from fœtid diarrhœa. It is likely that every attack of bronchitis leads to some enlargement of the bronchial glands. Attacks often repeated or prolonged may produce a very considerable enlargement, then broncho-adenitis may become an active cause of future bronchitis. This point in causation should be borne in mind, and the character of the cough may help to verify a diagnosis of the condition. We repeat, the specific or exciting cause of infant bronchitis may be: Poisons of infectious disease; poisons developed in the intestines; malnutrition and broncho-adenitis.

Broncho-pneumonia. Inasmuch as broncho-pneumonia is the most frequent and dangerous complication, sometimes destroying nearly all who are attacked , we will now give it our special attention.

As a disease it results directly from an extension downward of a bronchitis to the deeper tissues, involving the smallest bronchi and the terminal alveoli as well as those adjacent to the bronchioles, and this is the chief lesion no matter how limited or extensive the disease, or how little or how much time may have been consumed in the process. If resulting from a simple bronchitis we call it primary, and just how common a disease primary broncho-pneumonia really is, has been answered quite differently by careful observers, some telling us that it is quite rare, while others affirm that it is sufficiently frequent, especially among delicate infants, to claim our earnest attention, and that all cases of bronchitis should be promptly and carefully treated with a view to securing rapid and full recovery. It would be of interest to know whether the disease occurs oftener in private practice or in asylums for the care of infants.

Course and symptoms. The course and picture presented by the different forms of broncho-pneumonia vary so widely that they seem scarcely to belong to the same disease.

As to time, it may run its course in a few hours or be protracted over many months, or run an intermediate course. Consequently, we say it may be acute, sub-acute or chronic.

And even in the acute form there is an infinite variety of cases.

Holt says of the congestive variety that it may prove fatal in from twelve to forty-eight hours, its very suddenness overwhelming the patient, who dies with very few marked symptoms. It comes to an infant who has a bronchitis either primary or secondary, perhaps without any marked exciting cause, and at once the pulse and temperature become greatly accelerated, extreme prostration with marked cyanosis quickly supervenes, and death comes so rapidly that the disease will likely be unrecognized, and may be laid to the charge of some malignant trouble. The above named author tells us that he has confirmed a diagnosis of broncho-pneumonia by post mortem examination in a little patient only sick twelve hours. The severe symptoms and rapid course are to be explained partly on mechanical grounds. The air vesicles in the lungs of the young infant are so small and easily compressed that engorgement renders them almost as useless for respiration as would consolidation, and carbonic acid poisoning closes the scene.

Then again in the acute variety there are all grades of onset, from the terribly rapid and severe down to the slow and insidious, and quite as great a variety of range marks the subsequent course. But in all forms there is increase in the pulse rate and temperature, which usually reaches from 102 to 104 degrees, or even higher, but is subject to daily remission coming oftenest in the morning. Respiration is rapid and attended with pain evidenced by a scowl or grunting expiration, usually with real dyspnœa. On inspiration there is a marked recession of all the soft parts of the chest and dilatation of the alæ nasi. Respiration is from 60 to 80 or even higher, and it is usually more embarrassed than the hearts action; there is more danger of respiratory than heart failure. Prostration gradually increases from the first. Cyanosis occurs in most of the severe cases. Convulsions are rare at the beginning, but often occur near the end and are nearly always fatal. Delirium may be present any time during the course, showing itself in restlessness and inability to recognize the mother or nurse.

Bacteriology. Different bacteriologists have arrived at results not wholly uniform, but in primary cases the pneumococcus, either alone or in association, has usually been found.

The history of the individual case seems to have given some indication of the nature of the pathogenic germs doing the mischief, the more virulent streptococcus and staphylococcus being often present in cases of the greatest violence. The Klebs-Loeffler bacillus has been recognized in cases following diphtheria, either where the presence of the diphtheritic membrane had or had not been noted in the pharynx or larynx, but undoubtedly caused by inspiration of the pyogenic cocci, and even the bacillus commune coli has been found by several observers, and its origin in the abdomen has been indicated by a preceding or associated fœtid diarrhœa. The bacillus tuberculosis has often been discovered, either as an active cause of the disease or as ingrafted upon a preëxisting broncho-pneumonia.

Diagnosis. A positive diagnosis cannot always be made at our first visit if we have been called promptly. In the course of bronchitis the added symptoms are more rapid pulse, higher temperature, dyspnœa attended with increased prostration, and if cyanosis has made its appearance we can feel pretty certain of our diagnosis, without physical signs, which are often delayed. If our bad condition has resulted from extension of the previous bronchitis to new tubes without involving air vesicles, the temperature subsides permanently after a day or two, and with it comes some improvement in every way, but let us not be too much encouraged by a temporary falling off of temperature, bearing in mind that in broncho-pneumonia we have as a rule remissions usually occurring in the morning often of two to four degrees, soon followed by exacerbation, which may carry it higher than before.

We must attend carefully to the physical signs. Our inspection should apply to the general appearance of the child as well as the chest. Mark well the facial expression. On chest inspection we shall notice its movements, whether free and uniform upon both sides. In broncho-pneumonia we expect a raising of the upper parts of the chest, with well marked recession of the lower at each respiration.

Upon auscultation we notice the respiratory mumur, and perhaps we may be able to hear the voice sounds from the cry. Our bronchitis will furnish coarse moist râles, but our chief value for diagnosis in auscultation is placed upon fine crepitation, which if present and added to the symptoms already enumerated makes our diagnosis of pneumonia sure, and it only remains for us to exclude lobor pneumonia, which has so many points of dissimilarity and so few likenesses that we need not enumerate them, briefly making mention of the difference in onset, course and physical signs, all of which vary much.

Differential diagnosis. From bronchitis early it can not be made in many cases. One point of importance is the localization. It is likely to be more general in bronchitis. Localized bronchitis means broncho-pneumonia. The persistence is of value to consider. High temperature and bad symptoms subside soon in bronchitis, while they remain in broncho-pneumonia. Diminished resonance and respiratory murmur over a limited area or areas points strongly to broncho-pneumonia, and as time goes on fine crepitation will settle the question, and perhaps signs of consolidation in both lungs make their appearance.

Congenital atelectasis is only to be considered during the first two or three months, and with feeble infants; the history will be sufficient, for it is a non-inflammatory trouble. Cyanosis is the leading symptom. Acquired atelectasis may occur to some extent as an accompaniment, but has been found post mortem less frequently than had been supposed. From pleurisy it offers no difficulty if a thorough physical examination can be made, which is not always easy to accomplish.

Pulmonary tuberculosis beginning in the course of bronchitis takes the form of broncho-pneumonia, and can only be diagnosed positively in many cases by finding the bacilli, which is often impossible on account of not getting sputum. Meningeal symptoms usually come on late in the disease and are congestive rather than inflammatory and lack many of the signs of meningitis.

Prognosis. Broncho-pneumonia is always a severe disease. A large proportion of fatal cases occur during the first two years of life, so the younger the child the greater the danger. Much depends upon the disease which introduced the broncho-pneumonia, it being most dangerous in measles, whooping cough and diphtheria. Persistent high temperature and late convulsions as well as extensive cyanosis are gad prognostic signs. Exhaustion is to be feared in protracted cases. A good condition of the digestive organs and taking good care of plenty of food always renders the outlook much more hopeful, so we are to watch the digestion with interest.

Treatment. Vogel more than thirty years ago protested against the current treatment of infant pneumonia which consisted largely in the abstraction of blood and the administration of antimony, saying that the influence upon the disease was to make the little patient die earlier than under expectant treatment, and quoted from a report of a foundling asylum in Paris a mortality of 127 out of 128 cases.

His plan submitted at that time compares very favorably with more modern authors. Careful attention to diet. The external application of a cloth folded into a girdle and wrung out of hot water encircling the chest and covered with oil silk, and flannel outside extending both above and below, urging the important effect upon pulmonary mucous membranes o fa weak infusion of ipecac. That in the early stage of dryness it promotes early glandular action and limits the extent of the inflammation, while later it promotes the expulsion of mucus, while in still later stages if the accumulation of mucus block the tubes and threaten suffocation, ipecac pushed to its emetic effect·may give prompt and persistent relief.

At a date a few years subsequent to this time J. Lewis Smith said that as the tendency is always to rapid asthenia a careful supportive plan is indicated, and when extreme prostration comes the great indication is stimulation. From time to time a great variety of internal remedies has been praised. Many kinds of poultices have had their day. Many inhalants have been upon trial, as air polluted with carbolic acid, turpentine, oil of eucalyptus and other substances too numerous to mention. Others believe with me in giving the babies plenty of air in its purity, the purer the better. The tendency of modern treatment is to give less medicine and more attention to diet and hygiene. Many of our good men tell us to abstain from the use of all expectorants, as they bring a risk of rendering the stomach and bowels less tolerant of food. That our sheet anchor of medical treatment is in stimulation, alcholics, strychnia, etc., and supportives.

According to the census of 1890 the death rate of the 28 principal cities of the United States was 22 per 1,000 of the enumerated population, varying from 9.4 in Omaha and 13.5 in Minneapolis to 23.4 in Boston, 26.4 in New York and 27.4 in Newark.

A correspondent of the *British Medical Journal* makes the rather startling statement that to his knowledge, in one of the largest infirmaries of Scotland, some seven deaths during the administration of chloroform have taken place in the course of the last few months.

THE ACTION OF THYROID EXTRACTS AS REMEDIES.—In his address at the opening of the Section of Pharmacology and Therapeutics at the last meeting of the British Medical Association, Dr. D. J. Leach said:

Concerning the action of thyroid and allied substances I need say but little. Physiological and pathological investigations indicate that the ductless glands, and even those which furnish excretions, supply some material which passes into the blood, and it is just possible that other tissues do the same. These internal secretions are probably necessary for the chemical transformation of other substances in various parts of the system, and, if the supply be defective, illness results. By giving thyroid gland we can certainly remove the effects due to an inefficient supply of its secretions, and reason has been given for believing that several other animal substances and their extracts yield, when given internally, mater al wanting in the blood, and thus prove of advantage in some diseases. But we have here no new pharmacological principle. The administration of a remedy for the purpose of adding something to the blood which it has not in sufficient quantity is not a departure from ordinary therapeutic proceedings. In the case of the thyroid, the substance which gives its power to the gland, or, at least, which contains the active material giving its power, has been separated.

Dr. J. H. Musser, of Philadelphia, says that his conclusion, from a study of the literature and his own experience, is that mitral obstructive murmurs appear and disappear from time to time; that aortic regurgitant murmurs rarely disappear, and that when they do it is due to some organic pathological change; that mitral regurgitant murmurs may be due to dilatation with incompetence, and are subject to change from time to time.

Writing of the use of hydrogen dioxide in blepharitis, Dr. S. C. Ayers, of Cincinnati, says· "The advantage of the dioxide is that it has a softening effect on crusts along the edge of the eyelid which water does not have. Applied in the strength of a six volume solution, there will soon be seen the specific action of the medicine. A white line of bubbles will be seen along the edge, and the crusts will seem to swell. Keep this up for a short time and the edges of the crusts will begin to separate. Then rub the lids dry with absorbent cotton and they will become partly detached. If they should prove to be very hard and dry, the dioxide will have to be used longer, allowing it more time to soak in. Then with a dressing probe or a scoop they can be lifted out without causing pain."

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THE FATE OF HEALTH RESORTS.

The most striking evidence that pulmonary tuberculosis is a communicable disease arises from the results of observations upon what goes on in those parts of the world, the salubrity of whose climate is such as to attract great numbers of consumptives. The history of these places is at first that pulmonary tuberculosis is almost or quite unknown; sufferers from the disease begin to come in and soon the population of sick is perhaps equal to the number of well. Then cases of consumption begin to appear among the natives or strangers who have come there well, and finally the disease becomes almost a scourge, with a death rate among the native population equalling or even surpassing that of the most unhealthy spots on the globe.

Such has been reported to be the experience of the Riviera and certain towns of Switzerland that have long been famous resorts for consumptives. Now reports of the same thing are beginning to come in this country, and in Colorado the number of cases reported as originating within the state has grown so large as to attract the serious attention of the medical profession, who are discussing the best method of dealing with the situation. In discussing this topic, Dr. S. G. Bonney, of Denver, stated, among the conclusions arrived at, that the attraction offered by the climate of Colorado was becoming embarrasing to the resident population and likely soon to make pulmonary tuberculosis an important indigenous disease; that the introduction of the disease was clearly due to direct contagion, owing to the large assembling within the state of consumptives; that the danger was sufficient to demand the enaction and enforcement of stringent regulations for the control of the disease; that, besides ordinary prophylactic measures, the registration and segregation of sufferers from the disease, with perhaps other radical steps, must be insisted upon.

There is every indication that the time is rapidly approaching when pulmonary tuberculosis will be taken under the charge of boards of health, and measures will be adopted to protect the public against it. In a discussion of the subject at the last meeting of the State Medical Society, the Health Commissioner of St. Paul dwelt upon the importance, nay the absolute necessity, of having public opinion behind a great innovation like any form of quarantine for consumptives. At present the sentimental objection is the great one, and the public must be aroused to its danger before it can be expected to put aside sentiment and let the law of self preservation operate. The necessary education of the public in the matter will rest mainly in the hands of the general practitioner, who, in his capacity of family adviser, will be the one to convince the people that they are exposing themselves to an avoidable danger. On all sides the family physician is urged to do this work, and he, with the coöperation of the press, will be able to bring about the reform.

It is evident that in Colorado some protection against the increase of consumption is a necessity. In Minnesota the situation is less grave because Minnesota is less sought as a residence by consumptives on account of the severity of its winter climate. Twenty years ago, however, before Colorado, New Mexico and California drew away these sufferers, Minnesota was a favorite resort, and many people come here still to escape the disease. Indigenous cases of consumption are by no means rare, and it is a matter of common observation among the older physicians of the state, that cases originating in the state are much more difficult to deal with than those that are imported from without. Their tendency is to progress rapidly to a fatal termination, and the best chance for the sufferer from the native disease is to make a radical change of climate as soon as the trouble is discovered. Once away it is usually necessary for him to stay away permanently, even though he recover entirely. It is to be remembered that, in a state where many people have been coming for years with pulmonary tuberculosis fastened upon them, there must be, as a result, an unusually large proportion of families in which there exists the hereditary tendency to the disease.

Minnesota will, therefore, look with great interest at the developments arising from the situation in other places that have greater claims to call themselves health resorts for consumptives. Should other states, where there is greater urgency for action, adopt protective measures against the disease, it will be an advantage to this state to have a chance to note the good and bad features of the measures taken. Should other states that need it more delay too long, it will not be surprising if Minnesota takes the lead in this as she has done in other important matters pertaining to the public health.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

BURNSIDE FOSTER, M. D., SECRETARY.

REGULAR MONTHLY MEETING, MONDAY EVENING, SEPTEMBER 27, 1897. The President, Dr. J. W. CHAMBERLIN, in the chair.

A committee of three, consisting of Drs. MEADE, HENDERSON and COLVIN, was appointed to draw up and present to the Society suitable resolutions concerning the death of Dr. A. R. DAY.

Dr. EDUARD BOECKMANN showed a patient whom he had operated upon for varicose veins of the leg.

Dr. A. W. WHITNEY read a paper on

FRACTURES AT AND NEAR THE ELBOW, WITH PRESENTATION OF CASES.

See page 446.

Dr. HAWKINS suggested putting these fractures up more in a fixed position than is usual. He does not approve of passive motion so early as the ninth day.

Dr. FRED LEAVITT spoke of a case of fracture of the external condyle in a young lady, in which the condyle became locked with the joint, perhaps by too tight a dressing. He showed an X-ray photograph of the case, which shows the condyle displaced and locked to the joint.

Dr. BORDEN, a guest of the Society, spoke of the great advantage of the use of the X-rays in these cases. He also mentioned Gerster's method of applying an Esmarch bandage to reduce the swelling for purposes of diagnosis. He does not recommend too early passive motion. He presented a skiagraph of a case of dislocation backward of the elbow joint.

Dr. BOECKMANN spoke of a case treated by acute flexion as the only way to adjust the parts. The result was satisfactory.

Dr. GILLETTE recommended dressing the cases in a straight position, and reported sixteen cases by Dr. BRIMHALL successfully treated by this method.

Dr. WHITNEY closed the discussion by stating he had probably been misunderstood in regard to the passive motion he had adopted. He did not approve of motion to produce pain, but a very mild form of slight flexion and extension. He presented the card board splint, moulded to the arm, used by him.

Dr. J. L. ROTHROCK read a paper entitled

THE PRESENT STATUS OF OUR KNOWLEDGE OF PUERPERAL ECLAMPSIA.

See page 427.

Dr. BORDEN stated that great benefit had been found, at Johns Hopkins and other places, to follow large hypodermic injections of salt solution in various septicæmic and other toxic conditions.

Dr. HAWKINS thought the sheet anchors of treatment were depressant and those remedies acting on the skin and bowels. In all his cases he had found large amounts of albumen and scanty urine. He recommended a prophylactic cathartic and a milk diet.

Dr. ROTHROCK, in closing, said: The effort to unravel the tangle of theories offered in explanation of eclampsia and to secure a thread which would lead to a plausible solution of the cause of the disease, is no small matter. I was led to the consideration of this subject by the erroneous impression which seems so deeply rooted in the minds of the profession, that a pronounced nephritis is a necessary accompanying condition of this affection.

The secret of success in its management lies in the early detection of signs pointing to threatened attacks, and in the direction of prophylactic measures against them. I have not gone into detail with regard to the hygienic and dietetic management of these cases, for time did not permit it, and, besides, it is generally well known. There is no doubt of the value of milk diet, providing the patient will submit to it. In the majority of cases, however, we shall have to content ourselves with a restricted diet, and, above all, caution against over-indulgence. Added to this, exercise and the maintenance of the activity of the secretions of the body, as by warm baths, laxatives and diuretics. The appearance of albuminuria with headaches and dizziness should arouse our suspicions of toxæmia, and an estimation of the urea and of the color reaction of the urine should be made, and if we wish to be more scientific, its degree of toxicity might be tested by intravenous injections on lower animals.

As Dr. BORDEN suggests, injection of normal solution has been used in septicæmia. In 1893 Porak and Bernheim employed it in eclampsia with alleged good results. It probably acts by immediately stimulating the heart, and by dilution of the blood, and perhaps, as has been suggested, the saline solution may neutralize the toxines in the blood as well as assist in their elimination.

Dr. W. B. MORLEY demonstrated the body of an infant which died twenty minutes after birth. There existed almost complete obstruction of the bowels with acute general peritonitis.

MINNESOTA ACADEMY OF MEDICINE.

R. O. BEARD, M. D., SECRETARY.

ANNUAL MEETING, WEDNESDAY, NOVEMBER 10 1897, at the Hotel Ryan, St. Paul; the President, Dr. J. W. CHAMBERLIN, in the Chair.

Dr. WILLIAM ASBURY HALL presented a specimen and report of a case of

PRIMARY CANCER OF THE GALL BLADDER.

Mrs. E. C., aged 52, widow, presented herself at his office on December 23, 1895, stating that she had been suffering for several weeks with great depression of spirits on awakening in the morning. She ate well, slept well, had no pain or bodily distress of any kind, and during the afternoon and evening felt fairly well mentally. She gave a history of having never been sick in her life, except when her children were born, her last confinement being over twenty years ago. A thorough physical examination indicated that she enjoyed the most perfect health. She had nothing to worry her in the least and her mental condition was unaccountable. As she did not improve, he advised her to visit some relatives in Iowa. She left in January and returned in May, 1896, unimproved. About this time she commenced to complain of severe pains in her shoulders and arms, intermittent in character. Saw her regularly once a week from that time until December, 1896, at which time the pain in her shoulders and arms was better but, instead, she complained of a severe boring pain, at times, between her shoulder blades. Appetite and digestion still perfect. Mental condition unchanged. No further change in her condition until March, 1897, when she suddenly commenced losing her appetite, and in a few days her aversion to food became so great that she was no longer able to swallow solid food of any kind. She commenced to lose weight and strength, and on April 16 she took to her bed and never arose from it afterwards. She subsisted entirely on liquids in small quantities, taken generally under protest. Drs. JONES and WESTON saw her in consultation on May 21, and both agreed that the case was one of extreme neurasthenia. At this time all pain was gone and she was absolutely free from suffering other than mental. On June 1 she expressed herself as unable to swallow even water and rectal feeding was resorted to. On June 3 she was given a test breakfast by means of the stomach tube, and a chemical examination revealed an entire absence of either hydrochloric or lactic acid. On June 20 Dr. SWEETSER saw the case in consultation, and a probable diagnosis of malignant disease was agreed upon although no tumor could be felt. On July 1 she commenced vomiting and at the same time passing considerable quantities of blood from the bowels. This continued without cessation, and on July 19 she died. The autopsy, which was held on the following morning, showed all the organs of her body to be absolutely healthy with the exception of the gall bladder, which was enlarged to the size of a large goose egg and attached to the colon, the posterior wall of the stomach and slightly to the liver. A section of the tumor, which was shown, revealed the presence of a gall stone over one inch in diameter which completely filled the gall bladder. The wall of the gall bladder was over one inch in thickness, and upon this was superimposed a new growth distinctly carcinomatous in character. He considered this case a very rare one as he had been unable to find another like it in his examination of the literature of malignant disease. That this woman should have carried this gall stone for as many years as she undoubtedly did, and its being the primary cause of the malignant degeneration which took place without any symptoms of its existence, he considered very remarkable. The case was certainly a very interesting one, as the symptoms were very obscure, and he was free to confess that he had no suspicion whatever, until a very short time before the death of the patient, as to the true nature of her trouble. He wished to add further that there was no jaundice or cachexia manifested during the course of her illness.

Dr. A. E. SENKLER, of St. Paul, inquired into the condition of the common bile duct, and called attention to its usual implication in carcinomatous disease.

Dr. J. L. ROTHROCK, of St. Paul, said that he had understood Dr. HALL to say that primary carcinoma of the gall bladder was rare. He thought that this was not the case. Several cases had been reported. Jaundice was a usual symptom.

Dr. A. W. ABBOTT, of Minneapolis, reported a case in which he had made a vaginal section two years ago for the removal of diseased ovaries. The operation revealed a chronic ovaritis, with cystic degeneration, and adhesions from a preëxisting peritonitis. Both ovaries were removed with the exception of a small piece of the size of a white bean, which was left for the purpose of determining its effect upon the nervous symptoms which usually follow such operations. One year after she became pregnant and aborted at six weeks. Decidual tissues, but no fœtal remains were found. Later she again conceived, and two weeks ago was delivered, at full term, of a healthy child.

Dr. GUSTAV RENZ, of St. Paul, reported a case in his practice at the City Hospital three weeks ago. An ordinary appendiceal abscess was opened, drained and a pint of pus removed in the usual way. The patient made a good recovery, pulse and temperature being normal for six weeks, although the sinus had not quite closed. At the end of that period a temperature of 103° and 104° suddenly developed. After two or three days a recurrence of the appendicitis was assumed, the abdomen was reopened, the appendix was found imbedded in the old adhesions and removed. The Widal test for typhoid was made, but gave negative results. The next day the patient went into collapse and died. An autopsy revealed extensive typhoid ulcers in the cæcum. Death evidently occurred from shock incident to the existence of typhoid fever.

Dr. C. H. HUNTER, of Minneapolis, reported a case of appendicitis with a history of recurrent attacks. Consultation had verified the diagnosis. The presence of pus was suspected, but no leucocytosis was observed. There was no evidence of fluctuation. The appendix was found to be swollen, rigid and ecchymotic. It was removed. The temperature did not go down. The question of typhoid fever was discussed, but the clinical picture was not suggestive. The following day, however, the Widal test gave a reaction; rose spots developed later and the disease ran its ordinary course. The typhoid fever was evidently complicated by catarrhal appendicitis.

Dr. H. A. TOMLINSON, OF St. Peter, reported the case of a patient who had been committed to the Hospital for the Insane six weeks ago. The general condition of the patient suggested typhoid fever. She was suffering with acute delirium. The Widal test confirmed the diagnosis. Rose spots appeared a week later. The disease terminated in recovery. Nevertheless, after recovery, the patient proved to be insane.

Dr. J. W. LITTLE, of Minneapolis, reported a case of labor complicated by typhoid fever. Two days after delivery the temperature rose; sepsis was suspected, although there was no other evidence of a septic condition. The cervix was dilated and the uterus washed out. The temperature continued. A consultation was had. It was feared that the disinfection had not been sufficiently thorough. The uterus was again cleansed. A little later the Widal test was made and a typhoid reaction was obtained. The case pursued a typical typhoid course.

The President-elect, Dr. J. W. CHAMBERLIN, of St. Paul, read his inaugural address entitled

THE USE OF THE OPHTHALMOSCOPE IN DIAGNOSIS.

See page 441.

Dr. J. L. ROTHROCK, of St. Paul, read a paper upon

INTESTINAL PARALYSIS FOLLOWING ABDOMINAL OPERATIONS.

See page 449.

Dr. A. W. ABBOTT, of Minneapolis, opened the discussion. He thought that another explanation than had been offered by the author of the paper might be found for intestinal paralysis following operation. Different results followed the operative approach of the pelvic contents from the vagina than were observed after abdominal incision. Distension had been more marked when large myomata had been removed, as Dr. ROTHROCK had pointed out. These large tumors are now rarer, because the larger ones have been culled out and earlier operations are made. The extent of the incision might be a causative influence in producing distension. A large incision meant greater exposure of the abdominal contents, greater evaporation from their surfaces and, consequently, more rapid cooling, and these conditions might superinduce paralysis of the intestines. The vaginal operation is, for this reason, preferable. If opening is made anteriorly it should be made as small as is compatible with good work.

Dr. F. A. DUNSMOOR, of Minneapolis, said that his observations had led him to views differing from Dr. ABBOTT'S. He regarded septic infection as a probable cause of these paralyses in a large proportion of cases. Bacilli were not always found if the operation is a dry one. He usually expected a fatal issue in such a case as Dr. ROTHROCK had reported.

Dr. A. MCLAREN, of St. Paul, suggested that some women who are subjected to abdominal operations have a low grade of colitis. Suffering with constipation, with its accumulation of food and mucus, they are poisoned from the intestinal canal. The symptoms regularly disappear with a clearance of the intestinal canal. He doubted if Dr. Rothrock's case was one of septic poisoning. He did not think the size of the tumor was a factor in the case. Most cases of intestinal paralysis following abdominal operation were associated with colitis which had existed for years.

Dr. Rothrock closed the discussion. Tweifel, of Leipsic, he said, had had a series of four hundred cases of dry asepsis in abdominal operations. He found that with moist asepsis he could not clear the blood out as well as with the dry form. There had been no evidence of colitis in the case he reported, although he was aware that such a condition often existed. The patient had been relieved of constipation since the operation, showing that pressure had had much to do with its causation. He agreed with Dr. Abbott that there was much less liability to distension in vaginal operations. He believed that his case was not septic, but that the paralysis was caused by constipation and by manipulation of the intestines.

MISCELLANY.

THE DECEMBER MAGAZINES.

Harper's.—A twenty page poem by Gen. Lew Wallace, with handsome illustrations, is the special feature of the December *Harper*, although, we dare say, other features of the issue will be more generally read. A study of the eggs of birds, with colored plates, is an article of rare interest and of great value. "George William Curtis at Concord" is a delightful article, because it is composed largely of letters from Mr. Curtis who was one of the few men engaged in the enterprise that seemed to realize the hopelessness of the undertaking, and was, nevertheless, greatly influenced by it.

The Atlantic.—Col. Higginson begins a new series of reminiscences of literary folk in this issue, treating of Englishmen whose confidences he had, and whose conversations he could not repeat while they are alive. Mr. Paul Leister Ford writes of the "American Historical Novel," and Mr. Kelsey gives us an exceedingly valuable review of "State Universities and Church Colleges," showing by reliable statistics that the religious element in the former is far greater than has usually been supposed, even by the friends of state schools.

The Review of Reviews.—An illustrated article on "How the Bible Came Down to Us," puts into readable form a vast deal of information that many persons have sought for in vain. "Sir John Gilbert and Victorian Illustration" shows at a glance what vast strides the art of illustration has made in a half century, and it shows, too, that there were some clever illustrators a half century ago, in spite of the crude execution of the block for the printer. Mr. E. V. Smalley, of St. Paul, writes instructively of "The New Canadian Reciprocity Movement;" and "One Who Knows Him" gives an entertaining "Character Sketch of the Ameer of Afghanistan." The departments of the magazine are rich with timely topics ably, clearly, and comprehensively treated. "The Books of the Season," by Albert Shaw, the editor of the magazine, is a very valuable contribution; for Mr. Shaw is a writer whose judgment is always to be trusted.

The Ladies' Home Journal.—Always delightful for the ladies, the *Journal* is becoming more than merely a ladies' paper; it is, indeed, a paper for the home. With its December issue it begins a series of articles from the wife of a cabinet minister, giving a new and delightful view of Washington social life; and it also begins some strong stories by our best writers, such, for instance, as Hamlin Garland. Its article on American homes, exteriors and interiors, have never been equalled, at least from the popular standpoint. Its price, $1.00, is merely nominal, and it is made possible only by its immense advertising patronage.

The Living Age.—No word of praise can exaggerate the value of this magazine, for it gives us, literally, the very best of English periodical literature; and at its reduced price of $6.00 it should have a much larger circulation than it has ever enjoyed. As it has space in our advertising columns, we need but call attention to its prospectus.

The Outlook.—It has for many years been the custom of *The Outlook* to publish, at about this time of the year, a special Book Number devoted largely to the holiday books and to articles of special interest to our readers. This year the Book Number contains, besides its usual full and discriminating reviews of holiday books, several articles relating to book making, book-binding and book illustration. The number has a special cover design peculiarly fitted for the purpose, and contains a very large number of illustrations. It is beyond doubt the best illustrated and most readable of all *The Outlook's* Book Numbers. ($3.00 a year. The Outlook Company, 13 Astor Place, New York.)

NOTES.

AN EFFICIENT TREATMENT FOR RHEUMATISM AND ALLIED AFFECTIONS.

By C. W. Canan, M. D.

Orkney Springs, Va.

For the past seven years I have constantly prescribed Tongaline, and the longer I do so the more thoroughly I learn to rely upon its efficacy for the diseases for which it is indicated. I had always secured good results from its administration, but during the past year these have far surpassed all my expectations, especially in such serious and obstinate troubles as rheumatism, la grippe and sciatica. These really wonderful results I consider due to my methods of administering the preparation, and I believe it to be to the advantage of every physician to understand just what these methods are. For instance, when I have a very severe case of inflammatory rheumatism, a case where the swelling is great and the pain almost beyond endurance, together with a high temperature, I commence with a teaspoonful of Tongaline every hour in a wineglassful of water just as hot as the patient can bear it. I follow the dose with as much hot water as the patient can take. In from four to eight hours the temperature is invariably reduced and the patient falls into a refreshing sleep. Under this treatment, within six hours I have seen the temperature drop from 104 degress to 100 degrees and the pain disappear as if by magic. Furthermore, I have time and time again witnessed the same results in severe cases of la grippe. The more severe the case, whether of rheumatism, la grippe, gout, sciatica or lumbago, the more I push the Tongaline by giving smaller doses at closer intervals and invariably in hot water in place of cold. In cases where the stomach rebels and Tongaline cannot be administered in that way, I have the affected parts, say the inflamed joints in a case of rheumatism, or the lumbar region in that of lumbago, sponged with alcohol or soda water, in fact, I prefer the latter, then rubbed with Tongaline and apply heat by a hot water bag, or by some other convenient method. It is really surprising how quickly and thoroughly the Tongaline is absorbed and how effective its action when it is administered in that manner. In la grippe, when the stomach is very irritable, as is so often the case, you will find that Tongaline applied locally, say under the inner side of the thighs and under the arms on the side of the chest, will eradicate trouble more quickly and thoroughly than any other remedial agent.

I call to mind a case of subacute, localized rheumatism of the knee, which had defied every kind of treatment generally prescribed for that condition, such as the potassium salts, salicylate of soda, tonics, blisters and counter-irritants. I decided to try Tongaline in the manner above described. By the third day the pain had almost disappeared and the swelling had been reduced two-thirds at least The improvement was uninterrupted and in ten days the patient pronounced himself cured. It is certainly somewhat remarkable to see an old, chronic rheumatic patient, who has been bedridden for months, able to walk comfortably, as if by magic, and due entirely to the effects of Tongaline. On several occasions, when in the company of medical men and the subject of rheumatism was introduced, I have mentioned this treatment, and stated that in my belief we had in Tongaline almost as thorough a specific for rheumatic and neuralgic diseases as quinine was for malaria. Some of the physicians remarked that they had not found Tongaline of so much value, whereupon I replied that the fault was in their manner of prescribing the preparation. I explained to them how Tongaline must invariably be pushed to the extreme in certain obstinate cases and always administered in hot water. Since then I have had the pleasure of hearing one of these physicians state that he is as firm a believer in the efficacy of Tongaline for rheumatism as I am, and that the reason he had never appreciated the preparation so thoroughly was because he had never used it in sufficiently large quantities. In conclusion I would state that if any reader of this article doubts the efficacy that I have ascribed to Tongaline in the more severe forms of the diseases for which it is indicated, just let him push the drug until the full physiological symptoms are secured, and I feel assured that he will agree thoroughly with my statements.—*St. Louis Medical and Surgical Journal.*

SUCCESSFUL TREATMENT OF CHRONIC (SUBACUTE) RHEUMATISM.

G. M. Blech, A. B., M. D., of Detroit, Mich., in his clinical report of two pages published in the *Journal of the American Medical Association* of October 9, 1897, reports the following cases successfully treated by him with the Hot Air Arm and Leg Bath, made by Frank S. Betz & Co., 78 State Street, Chicago, Ill.:

Mr. A. F., aged 36. Had rheumatism two years. May 11, duration 18 minutes; May 12, duration 19 minutes; May 13, duration 21 minutes; May 14, duration 24 minutes; May 15, duration 26 minutes; May 16, duration 21 minutes; May 19, duration 30 minutes.

Mrs. A. F., aged 36. Had rheumatism five years. May 13, duration 18 minutes; May 14, duration 20 minutes; May 15, duration 22 minutes: May 16, duration 24 minutes; May 17, duration 26 minutes; May 19, duration 29 minutes; May 21, duration 22 minutes.

Mr. E. C., aged 29. Polyarthritis chronica, two and a half years. May 12, duration 15 minutes; May 13, duration 17 minutes; May 14, duration 22 minutes; May 16, duration 29 minutes; May 18, duration 30 minutes.

Mr. N. B., chronic muscular rheumatism, three and a half years. May 12, duration 10 minutes; May 13, duration 12 minutes; May 15, duration 15 minutes; May 16, duration 18 minutes; May 21, duration 22 minutes; May 22, duration 29 minutes; May 23, duration 30 minutes.

Miss E. T., my assistant, aged 24. Chronic rheumatism of muscles of arms, one and a half years. May 11, duration 18 minutes, temperature 206° F.; May 12, duration 19 minutes, temperature 209° F.; May 13, duration 20 minutes, temperature 211° F.; May 14, duration 22 minutes, temperature 215° F.; May 17, duration 30 minutes, temperature 220° F.

Mrs. F. D. Polyarthritis chronica, six years, aged 38. May 10, duration 15 minutes, temperature 201° F.; May 11, duration 20 minutes, temperature 202° F.; May 12, duration 19 minutes, temperature 205° F.; May 19, duration 24 minutes, temperature 212° F.; May 21, duration 26 minutes, temperature 217° F.

Dr. G. B., writer. Polyarthritis subacuta; pleurodynia a few weeks. May 2, duration 20 minutes, temperature 205° F.; May 3, duration 22 minutes, temperature 208° F.; May 4, duration 25 minutes, temperature 204° F.; May 6, duration 30 minutes, temperature 221° F.

Their advertisement appears in this journal.

Dr. I. A. Partridge, Warren, Pa.: I use Eucalyptol (Sander & Sons') in an atomizer combined with liquid alboline (a petroleum preparation), with excellent results in nasal and bronchial catarrh. I think highly of this preparation.

A NEW PACKAGE.

Owing to continuous requests from public institutions, such as asylums, dispensaries, hospitals, homes and infirmaries, the Norwich Pharmacal Co., Norwich, N. Y., will place upon the market on January 1, 1898, a new five pound tin to be known as "hospital size," and will retail for $4 75. This new package will doubtless be largely used by a great number of physicians outside of hospitals, as Unguentine is now recognized by leading members of the profession to be one of the very best surgical dressings in every case where there is inflammation, and is a valuable addition to the office shelf or table.

THE BERKEFELD FILTER.

A NEW AND IMPORTANT INVENTION FOR THE HOUSE, LABORATORY, HOSPITAL OR SANATARIUM.

This is a pressure filter. The filtering cylinder is made of Infusorial Earth, found in the well known Kieselguhr (fossil meal) mines in Hanover, Germany, and the peculiar properties and microscopic construction of the earth (composed, as it is, of the silicious skeletons of diatomaceæ) render it peculiarly suitable for the purpose of filtration. The form of these minute skeletons gives an enormous number of exceedingly small pores, thus affording a free passage for the liquid and at the same time stopping that of the minutest suspended organic or inorganic matter, while their hard, silicious nature gives a firm and practically indestructible material.

The Berkefeld filter, therefore, possesses the following advantages:

It gives a continuous flow of perfectly pure water, absolutely free from germs. The filter cylinder can be thoroughly sterilized by boiling for an hour and easily cleaned by washing, when it easily regains its usual rapidity of filtration. It is the cheapest and most rapid germ-proof filter made, and the most simple. It has been tested and recommended by eminent scientists, being pronounced absolutely germ-proof.

Staff Surgeon Dr. Prochnick, Hygienic Section University of Vienna, subjected the Berkefeld filter to the most rigid tests, giving them before the International Congress of Hygiene and Demography, held in August, 1891, in London. "He had not found a single case during his researches of bacteria having grown through the filter—end of thirty-eight days continued filtration—all samples tested were absolutely free of bacteria."

Dr. Carl Enoch, of the Chemical Hygienic Institute, Hamburg, says:

> "Water passed through charcoal twice contained innumerable bacteria. Water filtered once through Berkefeld filter was perfectly free from all bacteria."

Dr. Samuel G. Dixon, of the Franklin Institute of Philadelphia, says:

> "Before filtration the colonies averaged to each .5 of a cc. of water twenty-six in number. After filtration the same quantity of water appeared to be *absolutely sterile*."

In the *Pharmceutische Centralhalle*, No. 40, 1891, Staff Surgeon Dr. Luebert gives the experiments made with a Berkefeld filter in the Hygienic Laboratory Albertstadt, at Dresden:

> "By adding to the town water cultures of disease germs, cholera, diphtheria, staphylococcus aureus, in which experiments neither the penetration nor the growing through of these disease germs could be traced."

R. H. Harland, F. I. C., F. C. S., Public Analyst, Laboratory Plough Court, London, E. C.:

> "At your request I have conducted an exhaustive series of bacteriological tests with water filtered through a Berkefeld filter. The experiments have extended over a period of two months, during which time water has been passing through the filter continuously. It is important to know that throughout the duration of the tests it was not necessary to sterilize the cylinder. There is no question that the filter removes all disease germs."

Put on thirty days' trial.

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DOCTOR:

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ORIGINAL ARTICLES.

PREPARATION AND USE OF NORMAL INFANT'S FOOD.*

By E. N. Eaton, M. Sc.

St. Paul.

To the general practitioner or even to the casual observer of the relative mortality in hand fed and breast fed infants no preface showing the need of a substitute for mother's milkis required.

Supported in his position by Roach, Jacobi and others, Holt names the following essentials in a food for infants:

Ist. The food must contain the same constituents as woman's milk, namely, fat, carbohydrates, proteids, inorganic salts and water.

2d. These constituents must be in about the same proportion as in woman's milk.

3d. As nearly as possible the different constituents should resemble those of woman's milk both in their chemical composition and in their behavior to the digestive fluids.

4th. (This statement should more properly appear negatively). The addition to the food of very young infants of substances not present in cow's milk; for example, starch is unnecessary, contrary to the best physiology, and if used in any considerable quantity may be positively harmful.

To the above requirements I think I may with common consent add the following:

The food should be as in healthy mother's milk, sterile, and free from the product of bacterial growth and fermentation. It should be so put up as to trust as little as possible to the vigilance and intelligence of the nurse and the unwise counsel of kind friends.

It should not cost more than the ability of the patron to pay.

As most of you are only too well aware, there is no substitute food on our market which will realize one half of the above requirements. In the preparation of Normal Infant's Food, I have endeavored to realize them all, and if in your estimation I have succeeded in so doing, I trust to receive your encouragement and the endorsement of the food so long as it is prepared with conscientions care and scientific accuracy.

For convenience we may consider the preparation of Normal Infant's Food in three stages.

1st. The source and treatment of the elementary materials—cow's milk.

2d. The analysis and modification of the milk.

3d. The bottling and sterilization.

The parent milk is from a herd of cross Jersey-Holstein cows kept under ideal sanitary conditions as regards food, cleanliness, ventilation and light. Morning's milk only is used; the first milk or fore milk is rejected, this containing most of the bacteria found in fresh milk. Immediately after drawn the milk is thoroughly aerated and cooled, thus dispelling the animal heat and foreign odor. The milk is now quickly delivered to the factory, maintaining the low temperature. On arrival at the factory the milk is sampled and analyzed to ascertain the exact content of fat, proteids and milk sugar. The test for fat must be made daily, but the proteids and lactose, which vary but slightly in milk from a single herd, need only an occasional determination.

Water is now added to reduce the proteids to 1.80 per cent. and the mixture divided into a "skim milk" and "cream" by means of a steam turbine centrifugal separator. "Skim milk" is now added to the "cream" until the fat is lowered to 3.50 per cent. Milk sugar is then added in such quantity as to make 6 per cent. of the food.

The milk will now contain 3.50 per cent. fat, 1.80 per cent. proteids, 6 per cent. milk sugar, and about .4 per cent. mineral salts.

The process of modification completed, the milk is bottled in four, seven and ten ounce nursing bottles, fitted with a rubber cap which allows air to escape but seals the bottle automatically with outside pressure. The filled bottles are then placed in a steam sterilizer and heated for twenty minutes at 100 degrees centigrade. They are then removed, cooled by spraying with cold water to 37 degrees C., and incubated at that temperature for four hours. The object of this is to allow the spores or enduring form of microbe life an opportunity to develop into bacteria, which are more readily destroyed. The process is completed by again heating the milk in the bottles for thirty minutes at 99 degrees C. and rapidly cooling with water as before. The temperature is still further reduced by placing it in a refrigerator held at 40 degrees F. Two bottles from each sterilization are placed in an incubator held at blood heat in order to test the completeness of the sterilization.

The food usually keeps from one to two weeks in this incubator, and should keep without curdling for at least a month on ice. Lactic acid never forms, the milk curdling without souring.

In using the milk it is recommended that a fresh bottle be opened for each feeding, the surplus milk, if any, being used for some other purpose. The bottles should be placed in hot water and the milk heated to blood heat, when a slight shaking mixes the cream. The feeding nipple is placed directly on the bottle. In cases where food is retained on the stomach with difficulty it is best to feed cold.

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*Read before the Ramsey County Medical Society, October 25, 1897.

The food may be fed as an exclusive diet until the tenth or twelfth month of life. It has been used very successfully as a supplementary food to breast milk. It is claimed by physicians in Germany, who have had more experience with similar foods than is as yet possible in America, that children fed upon this food have the strong vitality or resistance to disease peculiar to breast-fed infants.

There is no need to enumerate the advantages of Normal Infant Food over the various patent foods. The only product with which it may be compared is modified milk as prepared in the Walker Gordon laboratories. Mr. Strouss is preparing a food in New York much in the manner followed in the modified milk laboratories, but following the examples set by nature and verified by use as best adheres to an invariable standard of composition.

James Fred Sarg, of Kempville, Virginia, prepares a milk for Philadelphia markets identical with that which I exhibit with the exception of the percentage of fat, which is 3 per cent. lower.

In comparison with the product of the modified milk laboratories, Normal Infant's Food has the following points of superiority:

The original milk is better.

Less time usually elapses between milking and heating, consequently the milk contains less lactic acid and the other products of bacterial action.

The food is rendered entirely instead of partially free from germs.

The food can be prepared more exact and uniform in composition.

It is rendered alkaline without the use of lime water or other alkalies.

The delivery bottles are nursing bottles, and show by their appearance any contamination with outside air.

The food is prepared at less than one-fourth the cost per day as that supplied by the modified milk laboratory in Chicago.

By the intelligent use of a 6 per cent. milk sugar solution such modification as is desirable may be made. As far as my observation goes, such modification is needed only in exceptional cases, when through abuse and the use of predigested food the stomach and other digestive organs are atrophied and unable to properly perform their functions.

Even in such cases, although good results have been obtained by the use of a milk sugar solution, I am not sure but equally good results might have been obtained by regulating the ingredients by the quantity of milk given at a feeding and the direct feeding of milk sugar solution or distilled water.

On account of the resemblance, not only in chemical but in physiological characteristics, of Normal Infant's Food to mother's milk, on account of its possessing the property of few, if any, liquid foods of being a nutriment rather than a stimulant, its use as an invalid food will easily suggest itself to physicians. As a matter of fact, it has been successfully used in cases of dyspepsia.

Normal Infant's Food prepared without the addition of milk sugar would seem to be indicated in diabetes.

A BRIEF HISTORY OF THE ORIGIN AND PRACTICE OF MUTILATING OPERATIONS ON THE SEXUAL ORGANS.*

By Burnside Foster, M. D.

St. Paul.

From the very earliest days of which history gives us any record, from the days of the infancy of mankind down to the present time, in all countries and through all successive ages, there have been performed, according to various customs and for various reasons, certain mutilating operations upon both the male and the female sexual organs. The history of these curious practices is both interesting and instructive to us as physicians, and it is my purpose this evening to give you an account, which I have gathered from a great variety of sources, of their origin and a description of their various methods of performance.

The most familiar and the most ancient of these operations is that of circumcision, which dates back to a period at least 6,000 years before Christ. It is more than probable that the originators of circumcision were the Israelites, and it was considered by them to have been a divine command. Some historians have held, chiefly basing their arguments on the discovery of certain ancient bas reliefs which illustrated the operation, that it originated with the Egyptians, among whom it was certainly practised from the earliest times. But it is more likely that with them it was performed as an hygienic measure, for they did not perform it before the age of ten to twelve years, and that they learned it from the Hebrews, who performed it then as their descendants do now, on infants eight days after birth. The earliest direct mention of circumcision as a religious ceremony is the command of God to Abraham: "This is my covenant which ye shall keep between me and you, and thy seed after thee; every man child among you shall be circumcised. And ye shall circumcise the flesh of your foreskin; and it shall be a token of the covenant between me and you." And, although at that time Abraham was 99 years of age, he promptly circumcised himself, all his servants and his son Ishmael.

The Israelites at that time are supposed to have lived in the land of Ur, among the mountains of

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*Read before the Ramsey County Medical Society, October 25, 1897.

Armenia, Kurdistan and Chaldea. The Phœnicians, a people who had made considerable maritime and commercial progress in very early times, soon learned and adopted the custom and by them it was communicated to the Egyptians, among whom it was made a national and imperative practice, and all strangers coming to sojourn in the country were required to be circumcised. The phallus had long been worshipped as a religious symbol among the Egyptians, and the circumcised phallus was later regarded as their national, religious and patriotic emblem. As it is a modern custom to swear or affirm by placing the hand on the Bible, the early Egyptian was accustomed, in taking an oath, to place the hand either on an artificial phallus which was held aloft, or on his own organ, and there was no more sacred form of oath than this.

Among the Mohammedans, and their forefathers the Arabs, it was the custom to circumcise at the age of 13, as this was supposed to have been the age of Ishmael when circumcised by Abraham, his father. Although not a requirement of their religion, it has long been almost a universal custom among all Mohammedans.

The Arabs and the Abyssinians appear to have been the originators of female circumcision, although, as their anatomical knowledge was very slight, it is not known whether the nympha or the clitoris was the part removed. Female circumcision was and still is among the Arabians performed by women, who make a distinct trade of it and go about with their instruments from one village to another. Male circumcision among the Arabs is performed in a somewhat wholesale manner, accompanied by a very elaborate ceremony, or set of ceremonies, which occurs only once in three or four years, and all the male children who have reached the proper age during the interval are operated upon together, the attendant feasts and orgies lasting for seven days.

It is a curious fact that circumcision existed among the early Chippewas of the upper Mississippi, among the Central Americans, the Mexicans and some Indian tribes of South America and among the natives of the Pacific Archipelago. It is by no means a fantastic theory that there existed, at some far distant time, a direct land communication between the old continent and the new, as there are very many remains of an early civilization among the Central Americans and among the early American Indians, which is the exact counterpart of the civilization of the Phœnicians and Egyptians. The similarity of early Central American and the Phœnician architecture, the existence of pyramids, and the similarity of names and of many words in their languages, the discovery of many household utensils and instruments, and the preservation of many ancient superstitions and customs—all point to a common origin, and Donnelly's sunken continent and lost tribe of Atlantis, is by no means to be considered as a purely imaginative creation.

There have been many curious theories advanced as to the origin of circumcision by those who believe that originally it was neither a religious nor a hygienic measure. Among most warlike people it has been, from the earliest times, the custom for the victor to carry off some portion of the body of his vanquished foe. Remondino suggests that as it was considered a sign of weakness and effeminacy to be vanquished and to live, the victor, probably with the idea of making his victim as much like a female as possible, was accustomed to cut off with one stroke all the external genitals. Each phallus which the warrior brought home with him from the wars showed that he had conquered and slain *men* and not *women*. Our own experiences in some of our Indian wars have demonstrated the existence of this same custom, although the Indians, as a rule, prefer the scalp as a trophy of victory. The Old Testament relates that David and his companions brought back two hundred prepuces (although some translators have claimed that the correct reading is "two hundred virile members") from the vanquished Philistines.

It is further argued, according to this theory of the origin of circumcision, that at a later date when the victorious nations found an important use as slaves or servants for their prisoners of war, they performed less dangerous mutilations, until finally the simple cutting off of the prepuce was selected as a badge of servitude and as an operation not incapacitating them for future usefulness. Whatever truth there may be to these theories, as applied to savage nations, it is generally accepted that among the civilized nations of antiquity, circumcision originated as a purely religious custom, and was adopted by later nations, other than Jews, as a purely hygienic measure, which it undoubtedly is.

Many curious and fantastic beliefs have been associated with the prepuce and phallus, even in comparatively modern times. Several Christian churches in different parts of Europe have claimed to possess pieces of the holy prepuce, which, if touched by a woman hitherto sterile, was a sure promotor of pregnancy; or, if already pregnant, it insured a safe delivery. It was for this latter purpose that the holy prepuce was brought by Henry V. from the abbey of Chartres in France to England to insure a safe delivery to Queen Catherine.

Near the ancient city of Bourges there existed (during the Roman occupation of Gaul) an old statue of Priapus, with an erect and protruding phallus, which was held in the highest veneration. Pregnant women and women desirous of becoming pregnant made frequent pilgrimages to this statue, and scrapings from the phallus mixed with vinegar, wine or water were sure to have the desired effect. The good monks were kept busy furnishing new organs as the old ones were scraped away. Whether the monks gave more material assistance to the suffering pilgrims in other ways is not definitely recorded. The results of the pilgrimages, however, appear to have been satisfactory.

Fresnel, in an article published in the *Revue des Deux Mondes* in 1838, describes as an invariable wedding ceremony among the Arabs of Djezan, a procedure which, it would seem, would hardly tend to make marriage popular. This operation consists in a most extensive circumcision, which is performed in the presence of the assembled wedding guests as well as the bride herself. The victim is turned over to the holy operator who proceeds to remove not only the prepuce but the entire skin of the penis as far back as the scrotum. "Should the happy bridegroom betray any sign of weakness or allow as much as a sigh or a groan to escape him, or even allow the muscles of his face to betray the fact that he is not immensely enjoying the occasion, the bride-elect at once leaves him for good, saying that she does not wish a woman for her husband." This operation naturally is frequently fatal, so that the Arabs might be "likened to those spiders who perish during their first and only act of copulation, and are immediately devoured by the female, the difference being that the spider's death is probably a happy one, which can scarcely be said of the Arab's!" (Remondino.)

The early operations of circumcision seem to have been performed with sharp instruments made of stone, of shells or of hard wood, and the fingernails of the operators were allowed to grow long and were used to tear the skin from the mucous membranes. The details of the operation, as tersely described in the "Mishna," a Hebrew religious work of the second century, consisted of "circumcision, excision, denudation and ruction." The latter proceeding was probably originally adopted as a means of controlling hemorrhage, but afterwards it was considered an important part of the religious rite, and was strictly required of all circumcisers. The more intelligent modern Jews have abandoned it, although it is still practised to some extent.

I shall not discuss the operation of circumcision as a modern surgical procedure, but I will simply state it as my belief that its general adoption would be of immense hygienic value to the human race. We know that the uncircumcised penis is peculiarly adapted to receive and absorb the infection from venereal sores, and it is a well established fact that syphilis is a comparatively rare disease among the Jews. This is not because they have any special immunity to infection, but because the circumcised penis is much less likely to receive the infection, and more easily kept clean than the uncircumcised. Malignant disease of the penis which, as we know, very commonly starts on the prepuce, is very rare among the Jews. Why the Jews should be less liable to tuberculosis than other races, although it is an undoubted fact that they are, is not easy to explain—as having any relation to circumcision. We know that many of the reflex nervous troubles of childhood have been traced to the constant irritation produced and maintained by a condition of phimosis, and that these conditions have been rapidly and completely cured by circumcision. I have several times seen cases of infantile eczema in male children (and it is an interesting fact that this disease is more common in boys than girls) disappear like magic after circumcision, when it had obstinately resisted all other forms of treatment. These facts, when considered carefully, and when we further consider the abstemious and domestic habits of the Jews, their freedom from dissipation and their high regard for chastity, explain to us why it has always been that, where they were unpersecuted and allowed to live according to their own customs, they have in all times been a healthy and long-lived people.

Another curious sexual mutilation, which had its origin in prehistoric times, was emasculation and the making of eunuchs. It is much more likely that this operation, than that of circumcision, had its origin as an infliction upon prisoners of war. When it became observed that emasculated individuals gradually lost their manliness, their pugnaciousness, and became docile, peaceful and more easily controlled, the operation was suggested as a valuable proceeding to be performed upon all slaves and servants, and even for persons to be placed in positions of trust. Among people who practised polygamy these sexless men were naturally suggested as servants in the harem, and it has been for this purpose chiefly that eunuchism has persisted and prevails today. Another peculiarity of eunuchs had been noticed and made use of at an early period—the feminine character of their voices. We first hear of eunuchs as singers in the history of the oriental church, where, especially in Constantinople, they have for centuries been employed to chant the sacred music, for which their beautiful soprano voices were peculiarly adapted. Amoug the Turks the eunuchs seem to have been the chief cultivators of the art of music, and they established schools of singing both in Constantinople and later in Russia.

The Italians, a nation who have always been peculiarly devoted to the cultivation of music, first imported eunuchs from the Orient, but afterwards learned to manufacture them at home, and the Italian eunuchs became famous in connection with the development of Italian opera in the seventeenth century. Eunuchism in Italy was abolished by Napoleon, although it is secretly carried on to some extent at the present day.

Eunuchism as a punishment for crime, especially sexual crimes and crimes against nature, has been found mentioned in the penal codes of many ancient nations, and in our time it has been advocated in certain forms of crime by many physicians and alienists, although popular sentiment is so strongly opposed to it that it has never been adopted by people of modern civilization.

There have been various methods of emasculation described and they were all equally brutal and attended by a high degree of mortality. The original method, said to be employed today among the Chinese and the Abyssinians, was to amputate at one stroke of the knife the entire external genital apparatus. This, of course, leaves a huge open wound, which no attempt is made to close. It is covered with some styptic powder and rude dressing and left for nature to repair. Probably 90 per cent. of those thus operated upon die. A more humane method, practised in Italy, was to remove only the scrotum and its contents, but it was only in comparatively recent times that they learned to open the scrotum and remove the testicles. An early method practised at one time by the Egyptians was by crushing or pounding the testicles without making any wound. This method was soon abandoned as it was found very often to fail to accomplish its object. The Soudanese are the principal eunuch producing people of today, furnishing, it is estimated, about 4,000 eunuchs annually to the harems of the Orient. Count de Bisson, as quoted by Remondino, has given an account of this brutal traffic. The little victims (for the operation is always done in childhood) are either purchased or stolen from neighboring countries, chiefly from Abyssinia. The operation is performed at a large monastery which is situated on Mount Ghebel-Eter, and the operators are Coptic monks. The helpless little victim is laid upon a table where his neck is fastened by an iron collar and his ankles by iron rings, his arms being held by assistants. With one sweep of a sharp knife the penis and scrotum are cut away. No attempt is made to stop the hemorrhage, but a bamboo catheter is fastened into the urethra, and the miserable patient is then buried up to his neck in warm sand, so tightly packed that he is unable to move, where he is left for several days exposed to the rays of the burning sun. About one in ten is said to recover, and even this seems a large proportion. The Soudanese eunuchs are highly prized and bring about $1,000 apiece. The simply castrated eunuchs manufactured at Karthoum, where the mortality of the operation is only one in three, being sold for about $200. When we consider that the mortality of aseptic castration is almost nil, it would seem that foreign missionaries might obtain a firm footing among these people by teaching them how to perform this operation scientifically, and if they didn't accomplish any other good among them they could at least save the lives of thousands of little Africans which are annually sacrificed to this horrible custom.

Another very curious mutilating operation, but one which we must acknowledge to have a very practical *raison d'etre*, is described by Carl Lumholtz as being practised among the Australian savages. It appears to have been original with them, and has never been described elsewhere. This operation consists in the formation in a large proportion of male children of an artificial hypospadias, the opening into the urethra being made at the peno scrotal junction with a specially contrived flint knife. The edges of the wound are then burned with a hot stone, and the wound is kept open until it heals by the introduction of a small piece of wood. This operation was undoubtedly contrived by the savages to prevent overpopulation. It is apparently attended by no mortality, and it does not interfere with the health of the individual nor with his sexual powers. It is simply a mechanical bar to production.

Lundholm further relates that among some of the tribes the operation is not performed until later in life, and sometimes it is deferred until the individual has married and had one or two children. As an operation of election, and only performed during adult life, it certainly has something to commend it among overpopulated communittes.

Among some of the South American native tribes travelers have described a curious apparatus worn by the men, consisting of a hollow tube of wood fastened over the prepuce with thread made from the bark of a tree; and elsewhere among them they wear a metal apparatus not unlike an old-fashioned candle snuffer, into which the penis is thrust and which is securely fastened by a strap around the loins.

An operation of great antiquity, not only among the ancient people of the old world but known to have been practised by many of the early tribes of America, is infibulation. The object of this operation seems to have been to preserve the chastity of the individual by making sexual intercourse impossible. The operation consisted in piercing the prepuce and inserting a large metal ring of gold, silver or iron and welding the ends together. In females the ring was fastened through the labia. The Greeks thus treated their Gladiators and athletes to prevent them from the enervating effects of sexual indulgence. Many of their public singers, comedians and dancers were also thus treated. Many of the monks of Greece and Asia Minor were compelled to undergo this operation, a precaution which seems to have been considered very necessary in those days.

Among some of the tribes of Africa at the present time, when a female child is born, the vulva is stitched together, leaving an opening only large enough for the escape of urine and the menstrual flow. The father is then certain of the possession of a virgin whom, at the age of maturity, he can deliver undefiled to her future husband, the vaginal adhesions being severed with a sharp knife just before marriage. Among these people, too, the married women are protected by means of a sort of muzzle fastened securely around the body and padlocked, the husband only knowing the combination and having the key.

In Du Bisson's book, before mentioned, is described a curious harness of virtue worn by some of the inmates of oriental harems. It consists of a bamboo stick about eight inches long, which is inserted for about three inches into the vagina, the remainder projecting between the thighs and held in place by a shield covering the vulva, the whole apparatus being securely strapped about the waist and fastened with a padlock.

The French surgeon, Dupuytren, records a modern instance of infibulation in the case of a man who came to his clinic for relief, with a much thickened and indurated prepuce caused by the presence of a gold padlock which had been worn for five years, and which he acknowledged to have been placed there by a woman who had deserted him and carried off the key. I remember to have read of a similar case in this country reported, I believe, by a New York surgeon within a few years, but I have been unable to find the account of it.

The study of these various methods of sexual mutilations which I have thus briefly described, is interesting not only to the physician and the andrologist, but also to the moralist and to the student of psychology as showing a peculiar association which seems to have always existed in the minds of the primitive people of all times and countries, between their religious and theurgic customs and beliefs and their ideas concerning the sexual functions and relations. That there is some inherent tendency in the human mind to this association is evidenced by the modern scientific study of psychopathia sexualis, and by the many familiar instances in modern civilization of the association of religious and erotic mania.

[Note—For much of the information in this paper I am indebted to Remondino's interesting book on The History of Circumcision.]

CONCERNING THE MODERN HOSPITAL. A BRIEF ACCOUNT.*

By Franklin Staples, M. D.

Winona, Minn.

What may be termed the modern hospital appears, in the present outlook, to have a large place both with the medical profession and with the people. It has come to this place by legitimate means; is the result of natural causes; there has been a development; there is a history.

From the Asclepions of ancient Greece and Rome to the institutions of modern times, the places of refuge for the sick and injured have represented, in general, the character and advancement of the medical profession, although to this exceptions have been known. The practice in the temples of Æsculapius showed the mixture of the theurgic and the natural medicines of antiquity. Statues of the god of medicine were erected therein for worship by the suffering, and votive tablets preserved the records of the cures believed to have resulted from prayer and incantations. Care was taken, however, that these temples should be located in pleasant places, generally on hill sides, where were pure water and freedom from the foul air and tumult of the city. Attention was paid to the diet of invalids and simple remedies were used. This would look like a respect for hygienic management, but it appears in history, that from the first, in the progress made in all countries there have been wide departures from the best hygienic procedures. In the days of the Roman republic there were hospitals for slaves, maintained by individuals for the purpose of protecting property. In the fourth century the Emperor Constantine had closed the Asclepieia and other pagan temples, and Helena, the mother of Constantine, was active in founding institutions for the care of the sick at Constantinople, Jerusalem and other cities. These were the first hospitals for charitable purposes. They were conducted by the monks and nuns of those times, and the practice of medicine therein is said to have consisted in religious observances and the use of the harmless remedies of monastic gardens. This was at the beginning of the dark and middle ages. Ages have been required for the advance to the present.

IN MODERN TIMES.

In this brief sketch we are to notice only the leading features of the hospital in general, without regard to the special arrangements of different kinds and grades of institutions, as they have existed or exist today.

In the article, "Hospitals," Encyclopædia Britannica, by F. de Chaumont, M. D., Professor of Hygiene, Royal Army Medical School, Netly, England, is an exhaustive historical exposition of the matter of hospitals, down to comparatively recent times. The views here given concern largely the institutions of England and France. A few of the following items are taken from this author:

First concerning statistics of mortality in hospitals in the past.

I. The word hospital, in its modifications and derivations, is as follows: Latin, *hospitalis*, from *hospes*, a host or guest. Latin, *hospitium*, a chamber for guests. French, *hospital*, *hopital*, *hostel*, *hotel*. The term "Hôtel de Dieu," Hôtel-Dieu (Dieu, God), has been applied to the chief hospital or infirmary of a town or city, because of its important or godlike mission.

In the Hôtel Dieu, of Paris, in the last century, the mortality at one time amounted to 220 per

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*Read at the Sixth Annual Meeting of the Southern Minnesota Medical Association, held at Winona, August 5, 1897.

1,000. In the British hospitals, at Scutari, it was given as between 400 and 500 per 1,000. It is mentioned by the way of explanation, that in both of these cases there was an inordinate crowding of patients. The death rate at St. Thomas' Hospital was given as 80 per 1,000, and of Guy's Hospital at 119. Other hospitals in London, and the great hospitals in Edinburgh and Glasgow, had about the same average of mortality.

Concerning the crowding of patients in the Hotel Dieu, it is said that the law forbade the hospital authorities to refuse admission to any one, and in 1773 there were 5,000 patients in this hospital. With this number there was a total gross area of only thirty square feet per head. It is recorded that the spectacle was to be seen there of two or three small-pox patients, or several surgical cases, or sometimes even four parturient women, lying in one bed. Moreover, the beds and rooms and hands and heads of assistants were not then what now belong to the modern hospital. The time of sanitation and sanitary requirements, as now known, had not then come to be. It was impossible to justly compare the death rates in different hospitals then, as it has been in cases since then, for the reason, among others, that different hospitals have different classes of patients; for instance, Guy's Hospital was looked upon as an asylum for incurables.

A REFORM MOVEMENT.

There is a little history concerning the beginning of hospital reform in Paris. Guizot, in his popular history of France, observes: "The sight of sick, dead and dying huddled together in the same bed, had excited the horror and pity of Madame Necker. She opened a little hospital, and supported it at her own expense and under her direction, which still bears the name of Necker Hospital, and which has served as a model for the reforms attempted in the great public establishments." From the same source came improvements in the Hotel Dieu. The story is as follows: "The active charity of Madame Necker had won her the esteem of the Archbishop of Paris, Christopher de Beaumont, a virtuous, fanatical priest. He had gained a great lawsuit against the city of Paris, which had to pay him the sum of three hundred thousand livres. 'It is our wish,' said the archbishop, 'that M. Necker should dispose of these funds to the greatest advantage for the state, trusting to his zeal, his love of good, and his wisdom, for the most useful employment of the said funds, and desiring further that no account be required of him as to their employment by any person whatever.' The prelate's three hundred thousand livres were devoted to internal improvements of the Hotel Dieu."

MODERN HOSPITAL ESSENTIALS.

The building. This should have a good site, away from the noise of the business part of the city or town, with sufficient room and elevation to afford its own pleasant surroundings, good air and perfect drainage. The finest hospital site known to the writer, having all of these advantages, is that of the Maine General Hospital at Portland, Maine. From the windows of its halls and wards, and from its grounds, are the grandest views of land and ocean which the country affords; yet the hospital is within the city and readily accessible. In large institutions the plan of detached buildings has an advantage. Buildings are of wood, brick or stone, or of these materials combined. Walls of brick or stone should not be solid, but should have air spaces between the outer wall and the inner lining. The floors of the light, well ventilated basements are of tile or cement. Ventilation in large buildings should always be by mechanical propulsion of air, the movement of which being regulated according to necessity. Heating by indirect radiation from steam or hot water coils aids the ventilation, providing there are sufficient exit flues from wards and rooms. An open fire grate is also a pleasant means of gentle heating and an important means of room ventilation. Arrangement of rooms throughout the building is in general in this wise: As many as possible should be so situated that the sunlight may be admitted. The operating room should be so isolated as not to allow the fumes of an anæsthetic to pass into the corridors. Corridors are to be of good width for convenience and airiness. The doors to all rooms must be of sufficient width to readily admit the wheeled conveyancer of patients. Thresholds are unnecessary, and the wheels of the rolling carts and chairs have rubber tires.

Furnishings and fixtures. The sanitary revolution in this latter part of the present century which has resulted from the discoveries in bacteriology, showing what may be contained in the dust of the atmosphere, and what germs of infection may rest upon the body or be held in the clothing of a person, has created the present hospital room, its belongings and management. It has done away with draperies and carpeting, made clean walls, and taught the meaning of asepsis in furniture and beds, and on the hands and the persons of attendants.

There is now a laudable competition among hospitals, great and small, in the matter of perfection in operating rooms. Manufacturers now understand what is meant by furniture, appliances, and instruments capable of being rendered and kept aseptic. If you are clean you may look within the room, but you must not handle. The white-capped assistant therein is on guard.

The nurse. An element in the progress of recent times has been the advent of the trained nurse, not only for the hospital but for general service. In this, as in all things worthy of record, there is a history. In the middle of the present century Florence Nightingale began her great work of reform in the working of hospitals, schools and reformatory institutions. She had studied in the hospitals in Germany, and at the time of the Crimean war did eminent service in the military hospitals at Scutari and elsewhere. The written record is this: "Her noble devotion and self-sacrifice among the troops earned her the blessing of the nation, and her name will forever be gratefully remembered in all questions connected with hospital reform and the improvement of nursing." Another English lady, Mrs. Wardroper, made her mark in the Crimean war, and did much to improve the nursing system of the day. She was the first superintendent of the Nightingale School of Nursing, and the original trainer of technically educated nurses for hospitals and infirmaries. The school of nurses has come to be a hospital institution. Teachers and pupils are alike elevated by the instruction of these schools. Practical knowledge of a high order is the general outcome. The profession of nurse is now respected and sought for by the educated student. A self-styled nurse said to me recently: "I am an experienced nurse but not one of your trained ones." Well, experience is a good thing when it has been gained along right lines, but the world has a multitude of such as are experienced in faulty ways and works, and are permanently established therein. A want of knowledge, or of the way to use it, is no longer excusable on account of ignorance of its advantages.

THE PRESENT OUTLOOK.

The advantages of the general hospital may not now be limited to any class or condition of people. Two important features concerning hospital management and uses may be noticed. First, the great work for public charity made possible by public support; and, second, the use of hospitals in the work of medical education. Both of these are legitimate, and both are of advantage on all sides, provided only, that the administration be intelligent and well directed, and the clinical use in worthy hands.

Complaint has been made that the charity use of hospitals and dispensaries has been abused; that in many places a large percentage of the service should not be afforded as a charity, for the reason, among others, that by this means physicians in private practice are deprived in a measure of their proper and legitimate support. The charge is undoubtedly correct. The remedy for the evil is to be found in what is mentioned above in the words "that the administration of hospitals be intelligent and well directed."

I have in mind the opening of the Bellevue Hospital College, New York, in 1861. On this occasion an eminent New Yorker expressed the general sentiment in words as follows: "New York, the Queen City of the hemisphere, from behind her harbor's lattice-work of shipping, looks out upon the commerce of the world, and her industries and institutions have a part in the progress of all nations. We have met today on the grounds of an institution which is one of the city's greatest and best practical charities, here to witness the establishment by the side of it of an institution of learning. It will be for these institutions, by advantageous coöperation, each to advance the good and the higher life of the other, to add to the general sum of human life, and to have a part in the world's advancement." This estimate of the happy relation of church and state, of the profession and the laity, was in general largely correct, but must be somewhat restricted in its application to the kind of political virtue which has been prevalent to a harmful extent among the New Yorkers. It appears that, in the recent effort to formulate the laws and define the policy of the present "Greater New York," the medical men of long service were invited to withdraw from the grounds of the great charitable hospital. It is understood, however, that the doctors propose to be strong enough to remain on duty.

The modern hospital, on its own merits, has come to be the most desirable and the safest place for all cases of surgery, for a large percentage of cases of ordinary illness, and has important advantages in its kind of management and care of cases of obstetrics (this being somewhat in contrast with what was true in earlier times). It has been an important element in the advance to the possibilities of modern surgery; it has a large place in the esteem of those who are informed, and large donations of private wealth are contributed for the founding of hospitals and their support. Public estimation is shown in the amount of municipal ownership and support. Political interference has sometimes opposed the best management, but public oversight has generally performed sufficient guard service to prevent abuses and to secure necessary advancement.

The future outlook of the general hospital—what shall be its standard of excellence and the extent of its usefulness—will accord with the progress of science and the educational advancement of the medical profession and of the people. Thus it will continue as the growing aid to the higher scientific work in medicine and surgery, the home of comfort for the invalid, and that which affords the best means for improvement and recovery.

* * *

The effects of obstructions in the air passages may be summed up briefly as follows: impediments in the naso-pharyngeal portion cause mouth-breathing; in the pharyngeal portion, snoring; and in the laryngeal, stridulous respiration.

STUDIES ON GUMMOUS (TERTIARY) SYPHILIS ESPECIALLY AS REGARDS ITS FREQUENCY, TIME OF OCCURRENCE, FORMS OF EXPRESSION AND POSSIBLE CAUSAL RELATIONS.*

By Kristian Gron.

Physician to Dept. Sorgenfri, Kristiania General Hospital.

The *Norsk Magazin for Lægevidenskaben* furnishes a supplement with the above title in the form of a monograph of 262 pages to the October number, 1897, of which the following is a résumé:

The monograph is supplied with twenty-five tables, giving careful statistical comparisons and calculations, and also a very complete bibliography of the literature of the subject. The opinion has been often expressed that careful clinical studies of syphilis, in a small country like Norway, where cases could be followed so long in their course, and where the autopsies could, in a great many cases, be made under the eye of such an eminent pathologist as Heiberg would be of very great value. To begin with, the author shows that the definition of syphilis called tertiary does not always hold good, especially from the chronological point of view, and that it does not always differentiate itself absolutely from other stages of the disease. The absence of infectiousness in this stage, which is supposed to be indisputable, cannot always be sustained. (The author recites two cases from his own experience where transmission has occurred at an advanced period of the malady).

Among the manifestations of gummous syphilis (the author prefers this name to that of "tertiary") the author is disposed, with Neisser, but in opposition to Fournier, Haslund and others, not to include tabes and general paralysis. Malignant syphilis, classed as gummous syphilis by Fournier and Mauriac, and by Haslund and Neisser as belonging to the secondary stage, the author is disposed, with Sederholm, to place in a class by itself.

With regard to the frequency of gummous syphilis, the author renders an exact account of all the sources of error which enter into the statistics of syphilis.

After a consideration of quite a large number of statistical facts concerning syphilis, embracing 36,767 cases, he finds 4,340 cases of the gummous form, which gives an average percentage of 11.8 per cent.

In the cutaneous service at the University Hospital, 3,471 cases of syphilis have been treated from 1871 to 1895.

Making use of the records of several different hospitals, the author has found among these cases 387 subjects afflicted with gummous syphilis, which gives an average of 11.1 per cent. (10.7 per cent. for men, 11.7 per cent. for women).

He wishes to remark in passing that the therapy was generally without mercury, and the treatment of syphilis in Norway does not give more unfavorable results than in other countries where the use of mercury is universal, and that the proportion of gummous syphilis there is less than the general average.

In comparing different statistics, one is made to see that authors are generally in accord in recognizing that the gummous manifestation of syphilis most often belongs to a stage relatively little advanced, counting from the initial infection; thus in 10.8 per cent. in the second year, in 10.7 per cent. in the third, 9.5 per cent. in the fourth, altogether in 36.7 per cent. in the first four years, in 36.3 per cent. between the fourth and tenth years, or in 73 per cent. in all of the first ten years, while only 21.4 per cent. have gummous accidents between ten and twenty years after the infection, 4.3 per cent. between twenty and thirty, 0.9 per cent. occur at a still later epoch. In the author's material he found 15 per cent. in the second year, 14.6 in the third, and not less than 13.3 per cent. in the first (411 cases showing the moment of infection and the dates of the gummous infections).

Among the manifestations of gummous syphilis the various authors agree in giving the principal place to affections of the cutaneous system (37.6 per cent.), while affections of the locomotor system and the nervous and mucous systems figure in statistics almost equally (18.4 per cent., 20.2 per cent. and 18.8 per cent.) This table is based on a collection of 10,681 cases, the figures belonging properly to the cases of the author. Five hundred and forty-three manifestations show 50.4 per cent. in the cutaneous system, 27.2 per cent. in the mucous system, 7.9 per cent. in the osseous system and 9.8 per cent. in the nervous system.

In table ix. are indicated especially the epoch of the primary manifestations of diverse affections particularly signalized by their early appearance (cerebro-spinal affections, sarcocele, affections of the mucous membranes of the genitals and pharyngo-nasal syphilis). The considerations presented by the author relative to visceral syphilis are based upon 162 autopsies executed in the Institute of Pathological Anatomy of the University Hospital during the years 1871 1895. The total number of autopsies made in this period was 3,429, the syphilitics forming a proportion of 4.3 per cent. In these 162 cases there were 306 visceral localizations of lues (table x). Among these localizations endarteritis occupied the first place, representing 76.6 per cent. in men, 49.1 per cent. in women.

The author does not intend to ascribe all this endarteritis to syphilis; he insists also upon the röle played by alcoholism and other causes. Following the order of importance the renal affections were 38.3 per cent. in men, 34.5 per cent. in women; those of the liver, 19.7 per cent. in men,

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*Translated and condensed by Haldor Sneve, M. D., of St. Paul.

29.1 per cent. in women; those of the head, properly speaking, excluding those consecutive to cerebral endarteritis, men, 17.2 per cent., women, 10.9 per cent.; the affections of the intestine occupy the sixth place, men, 10.3 per cent., women, 12.7 per cent. The special localizations of endarteritis are found in table xii., and of the liver, table xiii. Amyloid degeneration was present in twenty-one patients, but in all, with one exception, there were at the same time other complications foreign to syphilis

In 57 patients, 35.2 per cent. out of the 162, were to be found the remains of old cutaneous eruptions or cutaneous eruptions of recent date; but while accidents of this sort were found in 6 patients, 33.3 per cent., in 18 syphilitics submitted to autopsies and not presenting any sort of visceral lues, therefore about the same percentage as in the 57, the author believes that it can be concluded that the opinion advanced that destructive processes of the skin and mucous membrane constitute a sort of protection to the localization of the disease in the viscera is probably not well founded.

In examining the different factors capable of playing a part in the genesis of gummous syphilis, the author expresses the opinion that *sex* does not exercise much influence, likewise the *age* at which the patient contracts the affection (see table xv. xvii.); the classes with the greatest vitality (those affected between the age of 20 and 30 years) seem to be the ones most exposed and seem to be most late victims of gummous affections, while the more aged are on the whole less affected.

Among the factors enfeebling the constitution, a complication of *scrofulous tuberculosis* seems apt to predispose the patient to humid (pustular) forms of syphilitic eruptions, but they do not furnish a large contingent of gummous patients. Table xviii. gives 14 tuberculous patients whose later histories were carefully followed for a number of years after syphilitic infection, in whom no gummous manifestations occurred.

The author believes that the influence of alcoholism upon the phenomena of tertiary syphilis has been grossly exaggerated; in table xix he gives an account of twenty-two alcoholists manifesting gummous lesions, and showed that in the majority of these cases there was no degree marked by malignity or precocity in the forms characterizing the affection. As regards other intoxications the material is too small to warrant an opinion. He does not attach much importance to the coëxistance of a nephritis. On the other hand pauperism certainly plays a great role.

Avocation seems to exert considerable influence, above all as regards mariners, who assuredly are placed in unfavorable conditions for proper care.

As regards the influence of extragenital affections the author is in accord with the majority of other syphilographers. In 628 cases of extragenitial infection he found seventy-two with gummous affections (11.04 per cent., i. e. the same proportion as in other forms of syphilis). The number of those in whom gummous accidents appeared within three years after infection corresponds closely to the average total percentage (table xxi).

It seems plausible without being susceptible of positive proof that certain variations in the nature of the virus may favor the ulterior production of gummous accidents. The author has not been able to substantiate the opinion that phagedena of the initial affection favors the appearance of gummous phenomena; the majority of phagedenic chancres observed by him occurred in soft chancre.

The suppression of mercurial treatment at the appearance of the disease seems, according to the facts of experience shown by the collection of statistics by other authors, to favor the production of gummous accidents, while the cases collected by the author (1521, 46, 3 per cent. having been the object of a purely local treatment, 924, or 28.2 per cent. treated by the iodide of potassium, and a total of 2932, 89, or 3 per cent., treated without mercury, tables xxi. and xxii.) does not substantiate a greater frequency or a greater precocity in the patients treated without mercury than in those to whom mercury had been administered in one form or the other.

Assuredly trauma merits a certain importance in the production of gummous affections; however, in only 10 cases has the author been able to prove a direct relationship.

THE ACTION OF X-RAYS ON MICROÖRGANISMS.—Bonomo and Gos have made researches in the military hospitals at Rome on this subject. They subjected cultures of various microörganisms (B. subtilis, B. tuberculosis, B. anthracis and others) up to the third generation to the influence of the X-rays, applied vertically, for a period of about three hours each day. Some retardation or diminution of vatality, vegetative and pathogenic, was observed in every case; but the change was for the most part very slight except in the case of B. anthracis. With this microbe a well-marked diminution in motor activity, modification of chromogenic power and loss of spore-producing property was observed. With this, too, a complete attenuation of pathogenic effects was observed, so that the authors feel it might be possible through successive cultures exposed to the X-rays to make the B. anthracis innocuous. No such marked results were obtained with the other microörganisms under the influence of the same rays. In every case such effects as were observed were more noticeable in the later than in the earlier cultures.—*British Medical Journal.*

Northwestern Lancet.

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THE HISTORY OF MEDICINE.

It has been noticeable during the past few years that there has grown up an increasing interest in the history of medicine. This has been shown by the appearance of a number of articles bearing upon this subject in medical journals, by the announcement of courses of lectures in medical schools and by the publication of at least one notable volume—"An Epitome of the History of Medicine," by Dr. Roswell Park, the well known surgeon of Buffalo, N. Y. A more extended notice of this book will be found in the department of the LANCET devoted to book reviews.

As usual Minnesota is well to the front when a movement is on foot looking to improvement in the knowledge of any branch of medical science. Readers of the LANCET will have read with pleasure during the past year several papers upon subjects relating to the history of medicine by Dr. Franklin Staples, of Winona, and it may be expected that other papers upon the same topic will follow from the same source. Furthermore, during the present winter, an evening course of lectures upon the history of medicine is to be delivered in the University of Minnesota by Dr. Burnside Foster, lectures intended primarily for medical students, but also for students in other departments of the University, and open to the outside public as well.

Essays have been written to show the advantage of a knowledge of history, and all that has been said of the value of studying the political, social and moral sides of the subject applies with full force to the medical. Here the most direct and practical advantage may be obtained by an acquaintance with what has been done in the past, and a study of the steps by which this branch of science has slowly ascended. The physician of the present day is often discouraged because of the limitations and failures of his art; he sometimes feels that he knows so little and is often so powerless in the face of disease that the whole thing is hardly worth while, that the practice of medicine is a failure. Let him turn back in the history of medicine, not to the days of Æsculapius, of Hippocrates, of Galen, not to the revolting practices and superstitions of the middle ages, but only a century ago, and he will find all the encouragement he wants in a comparison of the medicine of his time with the medicine of that. Let the man of the present day go back a century and he would feel that he was in the midst of dense ignorance and an utter lack of all that made the practice of his art possible. In surgery he would find few instruments, and those of the simplest and roughest kind; no anæsthesia, the range of operation limited almost entirely to amputations, the ligature of arteries, the removal of tumors and to trephining. He would find whole regions of the body forbidden ground against the trespass of the knife. He would find a hospital mortality in some cases over forty per cent. At Guy's, in London, it was so bad that to go to the hospital was much the same thing as to go to the grave. In obstetrics the man of a century ago would find the forceps used in a hesitating and timid way that robbed the instrument of much of its value. In medicine he would find an entire absence of instruments of precision in diagnosis, many of the common diseases unknown or confounded with others, and therapeutical resources limited to a few chemicals and simples administered almost entirely on empirical grounds.

If the medical man at the end of the eighteenth century had been told that he knew almost nothing of his art, he would have been greatly surprised as well as indignant, for he no doubt fancied that his learning was considerable and the practice of medicine quite advanced. And so it was, too, when compared with what had preceded it by only a comparatively short space of time. Think of a medical science that was not aware of the circulation of the blood. What could be hoped from it? Was it not, perhaps, just as well for the sick to depend upon charms and incantations as upon any remedies that could be applied by physicians ignorant of the most fundamental principles upon which the science of medicine rests?

The great advantage to be gained by a study of what has been done in the past is through the avoidance of the old errors of those that have gone before. The ignorant man must learn wisdom from experience. He who is acquainted with the history of past failures and mistakes may profit by them and avoid like blunders. This is an immense advantage, and one that alone would repay much time spent in the study of what has been done in the years gone by. Another important thing to be learned is humility—a hesitation to be too sure that the theory of the present day is right. Can physicians today afford to smile at the old conflict between the humoral and the neural pathologies, systems that once reigned as supreme as did afterwards the cellular pathology or does now the bacteriological? It may well happen that the end of the twentieth century will find the bacteria all dead and buried in the pages of forgotten treatises, to be resurrected only when some explorer of the past wishes to use them to illustrate the ignorance of this day and generation.

CORRESPONDENCE.

THE MEDICAL PRACTICE ACT OF NEW MEXICO.

Editor of NORTHWESTERN LANCET:

SIR: In the issue of the LANCET under date November 1, 1897, is contained an article by Dr. Thomas McDavitt, of St. Paul, entitled: "A Resumé of the Medical Legislation of the Past Year," and under the heading of New Mexico are the words: "A mixed board with no powers. 1882." I beg leave to correct this and send you herewith a copy of a more recent medical law enacted by the territorial legislature and approved February 27, 1895, and which you will see is a much more general and modern act than the law of 1882. Will you kindly give this such notice in the LANCET as the subject may deserve, and oblige,

FRANCIS CROSSON.

Albuquerque, N. M., Dec. 3, 1897.

The law referred to is too long to be given in full in this place, but the following extracts will show its scope. [ED.]:

An Act to Regulate the Practice of Medicine and to establish a Territorial Board of Health in the Territory of New Mexico. Approved February 27, 1895.

Be it enacted by the Legislative Assembly of the Territory of New Mexico:

Section 1. QUALIFICATIONS FOR PRACTICE. That no person shall practise medicine in any of its departments in this Territory, unless such person possesses the qualifications required by this act. If a graduate in medicine, he must present his diploma, by mail or in person, to the Territorial Board of Health for verification as to its genuineness.

If the diploma is found genuine, and from a legally chartered medical institution in good standing, and if the person named therein be the person claiming and presenting the same, the Territorial Board of Health shall issue a certificate to that effect, signed by all the members thereof, and such certificate shall be conclusive as to the right of the lawful holder of the same to practise medicine in this territory. If not a graduate, the person practising medicine in this Territory shall present himself to said Board and submit himself to such examination as the Board may require, and if the examination be satisfactory to the Board, the said Board shall issue its certificate in accordance with the facts, and the lawful holder of such certificate shall be entitled to all the rights and privileges therein mentioned. Provided, That any person who shall have practised medicine continuously for the period of ten years in this Territory prior to the passage of this act, shall be entitled to a license or certificate, without examination, upon the payment of the fee for such license or certificate.

Section 2. TERRITORIAL BOARD OF HEALTH—ORGANIZATION. That a board is hereby established which shall be known under the name and style of the "New Mexico Territorial Board of Health," to be composed of seven practising physicians of known ability and integrity, who are graduates of medical schools of undoubted respect-ability, and holding licenses to practise in this Territory, giving each of the three schools of medicine (known as the regular, homœopathic and eclectic schools) a representation as follows, to wit: Four (4) physicians of the regular, two (2) of the homœopathic, and one (1) of the eclectic schools or system of medicine. The members of this board shall be appointed by the Governor, and shall hold their office two years, and all vacancies shall be similarly filled as soon as the Governor is notified thereof by the Secretary of the Board.

The Territorial Board of Health shall organize within three months after the passage of this act; it shall procure a seal, and shall receive through its Secretary applications for certificates and examinations; the President and Secretary shall have the authority to administer oaths and the Board shall take testimony in all matters relating to its duties; it shall issue certificates to all who furnish satisfactory proof of having received diplomas or licenses from legally chartered medical institutions in good standing as may be determined by the Board. Applicants for certificates, being graduates, or to all who now have licenses to practise in the Territory issued by the present or former Board of Medical Examiners, shall pay a fee of five (5) dollars to the Secretary of the Board, who shall turn the same into the treasury of the Board.

* * * * * * *

The New Mexico Territorial Board of Health, at its meeting June 19, 1895, adopted this standard for medical colleges:

Examination will be required of all applicants to practise medicine in New Mexico, who shall graduate after July 1, 1897, from any medical college which does not require of matriculants, as a minimum evidence of sufficient general education, a high school certificate or its equivalent; and for graduation proof of four years' study of medicine and four terms of lectures occurring in four separate years.

THE WORKS OF WM. WARREN GREENE, M. D.

Editor of NORTHWESTERN LANCET:

SIR: I am making an effort to obtain a complete list of the articles published by my father, the late Wm. Warren Greene, of Portland. The references are scattered and difficult to obtain, and I would ask that any of his old students or professional friends who have reprints or references to articles will kindly advise me concerning them, thereby conferring a favor which will be greatly appreciated.

CHAS. LYMAN GREENE.

St. Paul, November 26, 1897.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

BURNSIDE FOSTER, M. D., SECRETARY.

REGULAR MONTHLY MEETING, MONDAY EVENING, OCTOBER 25, 1897. The President, Dr. J. W. CHAMBERLIN, in the chair.

Mr. E. N. EATON read a paper on

THE PREPARATION OF NORMAL INFANT FOOD,

See page 463.

Dr. BURNSIDE FOSTER read a paper entitled

A BRIEF HISTORY OF THE ORIGIN AND PRACTICE OF MUTILATING OPERATIONS ON THE SEXUAL ORGANS.

See page 464.

Dr. EDOUARD BOECKMANN showed a patient upon whom he had ligated both internal saphenous veins (Trendelenburg's operation), and described the operation.

MISCELLANY.

WESTERN SURGICAL AND GYNÆCOLOGICAL ASSOCIATION.

The following communication is addressed to the surgeons and gynæcologists of the West:

The next meeting of the Western Surgical and Gynæcological Association will be held in Denver, December 28 and 29. It is the purpose of members of the Association, and of this Committee, to make this meeting one of unusual interest, and the papers and attendance promised indicate that the effort will be successful.

This Association is the surgical society of the West, and must become to the West what the Southern Surgical and Gynæcological Association is to the South.

To this end it is desired that the many able and skillful surgeons and gynæcologists of the West be brought to this meeting and enlisted in the organization for scientific work.

We are so much cut off from the scientific societies of the East and South that it is imperative that we create for ourselves a society that will foster among us the true scientific spirit and give us a better knowledge of each other.

If you are doing surgical and gynæcological work, and can by any possibility arrange to be at this Denver meeting, do so by all means. It will be representative of the best and most advanced surgical skill among us, and you cannot afford to be absent. If you have a paper to read, write to the Secretary at once and ask for a place on the program; but make your plans to come to Denver on December 28 and at least contribute by your presence to the success of the Association. We need you; you need us.

A banquet will be given the visitors by the physicians of Colorado, and every effort will be put forth to make the stay of each individual as pleasant and profitable as possible.

COMMITTEE OF ARRANGEMENTS
AT DENVER, COLO.
W. W. Grant, M. D., Chairman.
C. K. Fleming, M. D., Sec. and Treas.

NOTES.

MEDICO-SURGICAL PRACTICE, WITH AUXILLIARY BLOOD SUPPLY, AT SOUND VIEW HOSPITAL, STAMFORD, CONN.

The medical press is receiving from time to time, an account of some extremely interesting cases that have been treated at Sound View, which we think will possess no little interest. The following is a case of chronic ulceration which was treated in the hospital's usual manner, with entire satisfactory results:

Miss E—— R——, of Newark, N. J., English; age, 46; admitted to Sound View Hospital September 10, 1897; gastric ulcer; all symptoms present of a well defined chronic case. General dyspepsia, of more or less flatulent form; fixed pain under the ensiform cartilage, extending back between the scapulæ, much increased by pressure, and also greatly aggravated immediately on taking food. There were also paroxysms of pain independently of food or pressure. The patient usually vomited after eating; the vomited matter usually containing blood-streaked mucus. She had suffered four hemorrhages of the stomach. The case was of six months standing, as near as I could learn, and had received many of the usual forms of treatment.

On September 12 the patient's stomach was gently washed out with a 20 per cent. solution of boracic acid. Absolute rest in bed was insisted on. Twenty drops of bovinine were administered every hour in a tablespoonful of lime water. Her functions also were regulated, and bowels washed out once in forty-eight hours with an enema of glycerine and soap suds.

At the end of the first forty-eight hours the patient said she felt greatly relieved of pain and had not vomited in six hours.

On the fourteenth the bovinine was increased to thirty drops every hour, in lime water and cold bouillon. Also was given ten drops of tincture of nux vomica and fifteen drops peroxide of hydrogen, three times a day; care being taken, of course, to see that the bovinine and peroxide of hydrogen were not taken at the same time.

Patient now showed decided improvement; pain occurred only at intervals, and with much less severity; vomiting had ceased entirely; there had been no hemorrhage, and a decided change for the better in the general physical and mental condition was apparent. It had been remarkable thus far to note the rapidity with which the pain was removed—a phenomenon always attendant on the application of bovinine to painful ulcerations, but which has not yet been decisively accounted for by the theories that have been suggested.

On September 21, the bovinine, nux vomica and peroxide of hydrogen having been continued, the progressive improvement permitted the patient to take boiled milk, butter milk and barley gruel. This treatment continued unchanged until October 1, when the bovinine was increased to a teaspoonful every two hours, principally in cold bouillon, the nux vomica and peroxide being continued. The next change was on October 15, when the bovinine was increased to a tablespoonful in old port wine, and the peroxide was discontinued, but not the nux vomica.

The patient could now be allowed a certain amount of daily exercise in the open air. She now suffered no pain whatever, further than some soreness to pressure; no nausea or vomiting; and the dyspeptic symptoms had almost entirely disappeared.

Bovinine and nux vomica were continued as above, and five grains animal charcoal were given after each taking of bovinine, to correct a tendency to fermentation, there having been observed on the thirteenth and fourteenth considerable accumulation of gas. After a few doses of charcoal this symptom was entirely relieved. On the twentieth the charcoal was discontinued; nux vomica and bovinine still as before until November 1.

November 1. At this time, outside of a little soreness under pressure, the patient seemed entirely restored to health. She was, however, advised to continue the treatment, which she faithfully did, up to the 18th, when a thorough and careful examination, physical and microscopical, revealed the ulcer entirely healed and health perfectly restored. The case will be watched for some months further and recalled hereafter.

Pepsin is undoubtedly one of the most valuable digestive agents of our materia medica, provided a good article is used. Robinson's Lime Juice and Pepsin and Arom. Fluid Pepsin we can recommend as possessing merit of high order. The fact that the manufacturers of these palatable preparations use the purest and best pepsin, and that every lot made by them is carefully tested before offering for sale, is a guarantee to the physician that he will certainly obtain the good results he expects from pepsin.

FERRATIN IN ANÆMIC DYSPEPSIAS.

Dr. Elbridge G. Cutler, of Boston, in a very excellent paper entitled "General Remarks on Gastric Dyspepsia," read before the Massachusetts Medical Society, June 8, 1897, and published in the *Boston Medical and Surgical Journal*, September 9, 1897, advises the use of Ferratin to increase the hæmoglobin. In examining the patient, "the relation or independence of dyspeptic conditions on other local diseases or general disturbances" should be found. The lungs and the urine should be examined weekly and the patient weighed; and if diet, control of daily life, etc., do not increase the hæmoglobin, then Ferratin should be used to aid the other measures.

CHALYBEATE PURGATIVES.

The *New York Medical Journal*, September 25, 1897, quotes Dr. C. E. Williams, as suggesting:

℞	Ferratin..................	2 drachms.
	Sodium bicarb............	2 "
	Powd. rhubarb	4 "
	Oil of fennel............	30 drops.

M. S.: Dose, a teaspoonful.

Dr. L. DeRudder, Marcus, Wash.: I use "Sander & Sons' Eucalyptol" in surgical cases and deep wounds, with speedy and excellent results; the formation of pus almost immediately ceases, and a healthy granulation succeeds. I prescribe it for internal use in sicknesses of a septic nature, for which I consider it the best specific. Eight to ten drops, with some syrup, every hour.

I have used phytoline in obesity and rheumatism with truly wonderful results. In one case the reduction was so great that it seemed really miraculous. Although I could not induce the patient to be weighed, I estimate her weight before taking at 430 pounds. She was compelled to have a special carriage to assist locomotion. I quote the patient's exact works: "As near as I can tell I lost about 190 pounds. I had not taken the phytoline more than three weeks when I noticed the change in my clothing, and at the end of four months I was weighed and had lost about 65 pounds. I stopped taking the medicine two months and then began again. In all I have lost about 190 pounds. It has also done me so much good for my rheumatism; could hardly stand on my feet to do anything; now I can be on them all day and never get tired. I did not entirely follow directions in diet." I have been acquainted with this lady and her family for many years, and the case speaks volumes for phytoline. J. E. Pilling, M. D.,

Burlington, Iowa.

THE NEW SALT OF CHINCHONA, BIENNOSTASINE.

The experience of the past two months has proved the value of the new drug. We have not had an opportunity of testing it upon any chronic hay fever cases, and must wait for word from some of our readers as to its value in this connection. There is nothing so far produced that anywhere near equals its action in acute coryzas —colds. A few doses decreases the secretion, relieves the weight and heaviness of the head and the cold can generally be made to disappear in 24 to 36 hours. It is a vaso-motor constrictor that is non-toxic and certain in its action. It is very gratifying indeed to witness the celerity of its action. Any of our readers who have not tried this remedy should do so. It is a permanent improvement in our materia medica.—Editorial in *Kansas City Medical Index.*

I have had remarkably good success with Pineoline. I first used it in a case where both mother and babe had eczema, with the most gratifying results. Since then, I used it in a case of chronic eczema. It is doing the work nicely so far, with a good prospect of radical cure. I also have a case under treatment of eczema of a year's standing. Had been under treatment of two other physicians, but without success. I put the patient on Pineoline, and this morning he came to my office to have the box refilled, very much encouraged with it.

I shall continue prescribing Pineoline, and shall not be found without it in my office.

S. C. Browne, M. D., Scio, Ore.

P. S.—A few words for Phytoline. I have used it in obesity with the most remarkable results. I am under obligation to express myself well pleased with your preparations.

A VITAL QUESTION.

In a recent exhaustive article on the alarming question of food adulteration, *The Medical Progress* says: "If food that should be pure, especially when it is required for the sick, is thus adulterated, how are we to expect the recovery of our patients? The best way out of the dilemma is for the physician to insist that his patients shall have only such products as are prescribed and recommended by him! There is one article of diet that can be relied on whenever a nutriment is needed for the invalid, and it is the Imperial Granum Food, a wheat preparation of absolute purity, that is especially beneficial in all gastric and enteric troubles."

TREATMENT OF BURNS.

The most exquisitely painful burns are assuaged in a few moments by an application of cocainized Campho Phénique, after the following formula:

℞

Cocaine Hydrochlorate.......	5 grains
Campho-Phénique....	½ ounce
Olive Oil....	½ ounce

M.

Rub up the cocaine and Campho-Phénique and add the olive oil. A man whose hand had been torn and badly burned by an electrical discharge, the pain of which was so severe that he fainted twice before the dressing could be applied, expressed himself as absolutely without pain in less than one minute after the application.

GERM PROOF WATER FILTERS.

It is surprising how many people will trust to strainers, or so-called filters, for the purifying of drinking water. Many others are using filters which are more thorough, and which do remove a large percentage of the impurities. Their appearance is favorable, and as many of them are called germ-proof filters, it is not strange they should be relied upon. Others have lost all faith in filtration as a means of purifying water. And it is better so, perhaps, when it is considered that there are scarcely any filters which are absolutely germ proof. Those who have studied the matter—there being many physicians among the number—are aware of the existence of at least two filters which are absolutely germ proof, having been tested by scientists whose names are a guarantee as to the truth of the claim.

An "Inquiry into the relative effieiency of water filters in the prevention of infectious disease," made by Dr. G. Sims Woodhead, F. R. C. S., and Dr. G. E. Cartwright Wood, B. Sc., and published in the *British Medical Journal*, No. 1767, November 10, 1894, shows the perfect confidence in the carbon, asbestos and similar filters, has bee ngularly misplaced, not one of these filters, which have been sold by hundreds of thousands, givi n protection, most of them, indeed, becoming hotbeds of disease, when once they become infected.

Out of thirty-five filters of various kinds and devices using charcoal, carbon, magnetic action, spongy iron, stoneware, etc., as a filtering medium, only two were found to be absolutely germ proof, the porcelain tube and the infusorial earth cylinder, the latter being the most practical, as it gives a good flow of water, even from the low priced domestic filter. THE BERKEFELD FILTER CO.,
A. R. Miller & Son, Northwestern Agents, 417 Bank of Commerce Building, Minneapolis, Minn.

Dr. James Reekie, Fairview, N. M.: So wide is with me the range of application of "Sander & Sons' Eucalypti Extract, Eucalyptol," that I carry it with me wherever I go. I find it most useful in diarrhœa, all throat troubles, bronchitis, etc. My usual mode of application varies from ten per cent. to fifty per cent., according to the case, say fifteen per cent. Eucalyptol (cut with alcohol), golden seal fld., thirty-five per cent., water fifty per cent. Equal parts of turpentine and Eucalyptol applied in cases of erysipelas have splendid effect.

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